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# CHRONICLE YEARBOOK

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# EDITORIAL

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We have arrived at a new century and a new millennium which deserve a celebration, that was witnessed with euphoric frenzy on many parts of globe recently. But after the initial euphoria, it is time to tackle the multiple challenges that this new century is characterised with. Some are new and are a reflection of this fast changing world while some are chronic in nature and are legacies of our past. In this year book we have probed on some of the challenges of the new century, that our nation faces in our todays and would likely to face in our tomorrows, if we as a nation do not woke up to those challenges very soon.

The cover story of our yearbook is very pertinent to the beginning of a new century. Here brief but relevant accounts of some of the outstanding personalities of the twentieth century are given. They were/are among the miniscule few great men and women who have enabled millions of ordinary people like us to live in a much more comfortable, more informative, more knowledge based, more enriched world which is also much more *small* than it was ever before.

In the national network section we have provided exhaustive study material on Indian polity, Indian economy, geography of India etc. At the same time, we have given an overview of the important national level events of 1999 which would facilitate in giving us a quick glance over the last year's socio-political and economic scenario.

The cultural mosaic section of this yearbook would be particularly useful for those who want to know India better, with a broader perspective. The essence of pluralistic culture of India has been presented to our readers, which we are sure would enrich their information base and illuminate their interest on India.

We have incorporated some relevant topics on Science and Technology that comprise exhaustive articles, explanations of various scientific phenomena and terminologies and also a broad overview of latest developments in the field. The material on Information Technology in particular is very much appropriate for our knowledge based age.

Overall, we have made a sincere attempt to present this yearbook as an extraordinary reference material for the researchers, as a reservoir of knowledge to stimulate the interest of the discerning readers and most importantly, as a singular storehouse of relevant information for the students of various competitive examinations.

We hope, our multiple endeavours would find their respective successes through the satisfaction of our readers. We ardently thank all our contributors, researchers and advertisers, without which this mammoth exercise wouldn't have been a reality.

Lastly, we welcome all our readers to a new millennium. We at Chronicle hope this new century and the new millennium brings peace, prosperity, and above all, happiness for everyone in the globe.



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## CHRONICLE YEARBOOK 2000



In the cover story, we have briefly discussed the great works of some of the greatest personalities of the twentieth century. They, with their stupendous genius, extraordinary, creative urge and superhuman endeavours have not only made a difference to our lives but also managed to change the perspective of millions of lives. Together, they made the twentieth century, what it was. We have however, have to confine the scope of this article within the spheres of science, literature, arts, politics, icons and sports because of the paucity of space.

### COVER STORY

People who made 20th century .....

Albert Einstein, Niels Bohr, Marie Curie, Edw'n Hubble, Alexander Fleming, Watson and Crick, Jonas Salk, Sigmund Freud, Stephen Hawking, Thomas Alva Edison, James Joyce, T.S. Eliot, Ayn Rand, Somerset Maugham, R. Tagore, W.B. Yeats, Jean Paul Sartre, George Bernard Shaw, Gabriel Garcia Marquez, Virginia Woolf, Pablo Picasso, Salvador Dalí, Anna Pavlova, Yehudi Menuhin, Marsha Graham, Zubin Mehta, Bob Dylan, Sir Winston Churchill, M.K. Gandhi, Theodore Roosevelt, Ho Chi Minh, Margaret Thatcher, Mao Tse Tung, V.I. Lenin, Nelson Mandela, Aung San Suu Kyi, Mother Teresa, Henry Ford, Charlie Chaplin, Martin Luther King Jr, Beatles, Bill Gates, Lady Diana, Michael Jackson, Pele, Mohammed Ali, Michael Jordan, Sunil Gavaskar Sir Donald Bradman, Steffi Graf

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# PEOPLE WHO MADE 20TH CENTURY

## Who gave us a better world to live in

□ SWARNENDU BISWAS □

**T**he twentieth century, which has just been transported into the realms of history was characterised with the most cataclysmic social, economic and political upheavals, ever witnessed in mankind's civilisation process. At the same time, the twentieth century is characterised by great inventions and path breaking discoveries which not only altered the course of our lifestyle significantly, but has also changed our perceptions about the universe drastically. The stupendous developments in communication, specially within a span of a few decades, have now made our world a global village and inroads made in the arena of medical science have significantly reduced human suffering and enhanced the longevity of the people. An undesirable byproduct of this however, is the alarming rise in global population, showing no signs of abatement.

New ideas and formats in literature and art which developed during the last century, broadened the zone of human sensibilities whereas at the same time, many established notions in the realms of painting, architecture, literature, sculpture etc. did witness a slow erosion of critical acclaim and popularity. Many new philosophical schools and thought patterns emerged in the last century, which not only challenged our long held conventional beliefs but also managed to change them to some extent.

Twentieth century was also the century of gross inequalities, rampant human rights violations,

chilling genocides and large scale wars which physically and as well as emotionally decimated an entire generation beyond repair. The wars, specially the World War I and II, not only took toll of millions and millions of priceless lives, made millions invalids but also left a permanent scar in the psyche of those who survived them. These long drawn out wars could be classified as one of the worst wrongs of the just past twentieth century, and its perpetrators (for e.g. Hitler, Mussolini etc) the worst villains. Partition of India and the Vietnam war were other two prominent examples of enormous human tragedy.

The twentieth century had witnessed a plethora of outstanding personalities in myriad fields who had left an undeliable mark on the global sphere. Here we propose to discuss in brief the achievements of a 'select' group of this already select club of great personalities of the twentieth century. There is no denying the fact that many worthy names may have been excluded from our list, primarily due to paucity of space. Our list is far from being an exhaustive one but is only an attempt to give a glance to the who's who of the twentieth century. Among them, physicists like Enrico Fermi, Max Planck, novelists like Ernest Hemingway, H.G. Wells, poets like Robert Frost, statesmen and stateswomen like Robert Mugabe and Golda Meir, musicians like Pandit Ravishankar, philosophers like Erica Jung etc. deserve a special mention though sadly for us.





because of space constraint they could not make it to this 'distinguished of the distinguished' list.

Here I want to mention a small but significant point. I am considering only those names who have had made, by and large, a *positive impact* on the twentieth century global civilisation that could be construed as seminal in nature. Therefore, no question of including Hitler, Idi Amin, Stalin etc. arise.

## Science



**Albert Einstein:** (1879-1955) Undoubtedly, the greatest scientist of the twentieth century, he was an embodiment of ultimate genius who revolutionised the conventional concepts pertaining to time and space. He

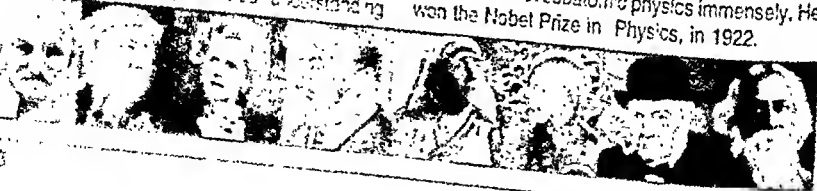
showed us that space and time are homologous and this became one of the cornerstones of modern physics. In doing so, he was also instrumental in transforming our long held beliefs about the universe. He attained scientific eminence on a global scale in 1905, when he published three outstanding papers on theoretical physics which also included his world famous special theory of relativity. It theoretically proved to the scientific community that time and space are relative quantities. According to this theory, the same event, viewed from different standpoints, can take varying time.

The special theory of relativity and seminal work on photoelectric effect were followed by his most famous and pathbreaking discovery - the General Theory of Relativity. His equation  $E=mc^2$ , proved a profound impact on our understanding

of the relationship between matter and energy. According to this equation, the energy that can be generated from a given body is equal to the mass of the body multiplied by the square of the speed of light; which is the fastest energy or thing in a 'known' universe. One of the most significant inferences of the theory of relativity, embodied in the equation  $E=mc^2$ , is that mass can be converted into energy. Before Einstein, mass and energy were considered separate entities but Einstein shattered the myth of conventional mechanics and postulated that mass and energy are indivisible and one is simply another facet of the other. Above all, his theory of relativity can be expressed as a philosophy which paved the way for a relative expression of our universe and helped many reflective minds to do away with the myth of absolutism.

The father of relativity was awarded the Nobel Prize in Physics, in 1921 for his outstanding work on Photoelectric Effect. The greatest physicist of our times died in his sleep on April 18, 1955, but his enduring vision changed the concept of our universe. After Einstein, our concept of universe is no longer a deterministic one as was visualised by Newtonian mechanics.

**Niels Bohr:** (1885-1962) He was a pioneering physicist who imaginatively applied the principles of quantum mechanics to the structure of atom. The structure of atom which he envisaged, facilitated our understanding of subatomic particles immensely. He theorised that electrons near a nucleus could occupy only certain specific positions. If the electrons change their position, they could do so only through quantum leaps. Bohr's structure of atom had a profound impact on the future generation of nuclear physicists and paved the way for development of subatomic physics immensely. He won the Nobel Prize in Physics, in 1922.



**Marie Curie: (1867-1934)** One of the greatest scientific brains of the 20th century, she won the Nobel Prize for Physics in 1903, along with her husband Pierre Curie, for their discovery of radium. The discovery of radium challenged many conventional theories on composition of matter and had far reaching applications on various branches of science, such as microbiology, geology, genetics, chemistry, physics etc. Most importantly, radium made significant contribution to the development of cancer research. However all this was not enough for her unfathomable scientific zeal and brilliance. She also won another Nobel prize in 1911, this time for Chemistry. She became the first person to win two Nobel prizes. Her entire life was guided in the pursuit of science. She ceaselessly worked for cancer prevention and treatment in her later years and ironically, it claimed her. She died of leukemia in 1934.

**Edwin Hubble: (1889-1953)** He was the person who made the adolescent science of astronomy make a quantum jump into maturity. He broadened our sphere of understanding immensely by proving that our universe is much, much beyond the domains of Milky way - the galaxy in which our Solar System belongs to. Hubble was the first to realize the then astonishing truth that the Milky Way is just a minuscule dot in the universe which actually comprise millions and billions of galaxies.

His other major discovery is still more and inspiring. He proved to us that the universe is expanding! He showed by peering through his telescope into the realms of universe, that the farther away a galaxy is from earth, the farther it is racing away which construes that the universe is expanding. His pathbreaking discovery paved the way for the celebrated 'big bang' theory about the origin of universe.

**Alexander Fleming: (1881-1955)** He was the discoverer of Penicillin who revolutionised medical science. His penicillin became one of the most powerful infection fighting agents ever to be invented in the entire civilisation process. It can be termed as the 'master drug' which gave a great boost to the treatment of bacterial infections. His invention conquered mankind's chronic diseases which had been plaguing it since ages such as syphilis, tuberculosis, etc. The invention of penicillin also spurred the development of pharmaceutical industry on a global level which started churning out panacea of synthetic penicillins to counter the age old pernicious ailments of human beings. Life became much more safe after Alexander Fleming. He won the Nobel Prize in 1945 for Medicine which he shared with Florey and Chains.

**Watson and Crick: (1928- , 1916 - )** They were the first(s) to give us an insight into the secrets of life. James Watson and Francis Crick, two gifted molecular biologists, figured out the structure of DNA in 1953. It is double helix. DNA molecule is the most basic unit of life and genes comprise of them. Genes in turn determine the basic characteristics such as intelligence, emotional expression, peculiarities etc. of human beings. For this discovery they were awarded the Nobel Prize in 1962. It was confirmed that DNA carried the hereditary information of life.

This significant discovery which facilitated in unravelling some of the secrets of life and paved the way for mushrooming of genetic engineering as a branch of science, made Watson and Crick one of the enduring scientific icons of the twentieth century. After Watson and Crick's ground breaking discovery, understanding the enigmas of genetic process was greatly facilitated. They won Nobel Prize for their research in 1962.



**Jonas Salk: (1914-1995)** The man who invented the polio vaccine, rightly deserves a place among the greatest scientists of the twentieth century. Though many chemists and microbiologists were racing to create a polio vaccine, prominent among them being Albert Sabin, he was the first to reach the goal and received global recognition. The Salk vaccine proved to be a panacea for millions of children for by being exposed to it they were now perennially protected from the menace of polio.

**Sigmund Freud: (1856-1938)** Though he was the recipient of the most eulogistic accolades and the most harsh condemnation, there is no denying the fact that this controversial figure is regarded as the father of psychology. He transformed the subject from intelligent guess work to systematic and logical study. His memorable work, *The Interpretation of Dreams* is still being treated as the fountainhead of modern psychology. His basic idea of psychoanalysis is that sexual drives are the most potent and the most ultimate of all the drives pertaining to human nature and in a person's unconscious state his/her sexual and other aggressive drives struggle with their defenses for supremacy. He also defied the popular belief that erotic drive starts at adolescence. According to him, it starts at infancy itself. He made a singular division of human mind into three parts which he termed as Id, Ego and Superego. Freud made mankind face many uncomfortable truths and facilitated many among us in having a better understanding of ourselves.

**Stephen Hawking: (1942 - )** Regarded by many as the greatest theoretical physicist since Albert Einstein, he has some remarkable theories in the realm of astrophysics. His work on antiparticle and the creation of universe have won

him global acclaim among the scientific community. Though confined to a wheelchair due to degenerative nerve disease, his super brain scanning the enigmas of hitherto domains of universe to enrich our sphere of edge about the vast unknown beyond our prehension. He presently holds the Issac chair as Lucassian Professor at Cambridge university. His celebrated book is *A Brief Time* which sold 5.5 million copies.

**Thomas Alva Edison: (1847-1931)** He the original man of inventions. He invented electric bulb, the transmitter and receiver for

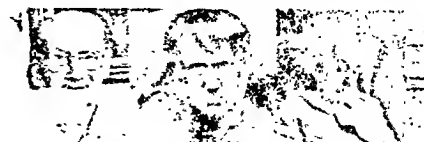


telegraphic system phonography and candescent lamp many other things. was also instrumental making the still move which gave birth to motion pictures. One of the

neering inventors of all times, he made our startlingly different from that of the nineteenth the preceding centuries. And also much more comfortable, enjoyable, enriching and small.

## Literature

**James Joyce: (1882-1941)** He is regarded as one of the most influential twentieth century litterateurs. He began his literary career with *Dubliners* but with *A Portrait of the Artist as a Young Man* (1916) he established himself in literary circles. His most famous novel *Ulysses* (1922) is singular in both content and format is being widely regarded as the greatest work of fiction in English language in the twentieth century. Though he never got popularity, acclaim for his seminal masterpieces never.



ii. His other prominent works are *Finnegans Wake* (1931) and *Exiles* (1918). He not only gave an exact portrayal of his contemporary Irish society, he also developed a new style of presentation characterised with his innovative use of English language. The universal philosophical insights embodied in his work also have a perennial quality and have the potency to transcend all man made boundaries.

**T.S. Eliot: (1888-1965)** The most influential poet in English language of this century, he was instrumental in making modern poetry what it is. Though born in the U.S.A. he became a British subject in 1927. He also converted himself to Anglo Catholicism and his later works *Four Quartets* (1935-1942) and *Ash Wednesday* (1930) embodies his religious concern. However, his eternal masterpiece *The Waste Land* (1922) was created much before all this. This great poem of modern poetry reflects the barrenness of modern life. The *Waste Land* is widely regarded as the most important poetic work in the English language for the twentieth century. As an essayist too, his contribution was far from negligible to the world literature. Through his lucid prose, he voiced major concerns of the twentieth century with uncommon profundity. He was awarded Nobel Prize in 1948.



**Ayn Rand: (1905-1982)** The founder of the "Objectivism" philosophy, she shook the literary world with her groundbreaking work *Fountainhead*. Through this voluminous fiction she tried to portray her view of an ideal man who in her novel struggles for his identity in an imperfect world, which worships mediocrity and conventional thinking and opposes any innovation. An avid believer in great-

ness of individual and free enterprise she elucidated her philosophy further in *"Atlas Shrugged"*. These two mammoth works made a lasting dent in not only the literary world but also among the thinking of many reflective men and women. Her other important works are *Anthem*, *Capitalism-The Unknown Ideal*, *For the new intellectual* etc. After her, modern western literature was never to be the same again.

**Somerset Maugham: (1874-1965)** One of the greatest British writers of all times, he handled novels, short stories and also plays with equal dexterity. He has been known as a master of irony and cynicism, which he indulged in occasionally and which enhanced the greatness of his works. His *Of Human Bondage* infuses autobiographical elements with fiction beautifully and his *The Razor's Edge*, *Moon and the Sixpence* projected universal values concerning passion, anguish and freedom of expression of iconoclasts and mavericks in the society. *Theater*, *Liza of Lambeth*, *Cakes and Ale* etc are his other prominent works which influenced and enthralled millions of common readers and thousands of literary critics, around the globe.

**R. Tagore (1861-1941) :** He was a poet, novelist, dramatist, essayist and short story writer of international stature.

He created his own brand of music- the *Rabindra Sangeet* and virtually infused the then novel idea of modern art in the Indian arts scenario. Definitely the most famous and the greatest literary figure of India of the twentieth century. he single



## COVER STORY

handedly exalted Indian literature to great heights and placed it in the arena of international literature. Through his seminal works he showed universal philosophical values which time cannot wither. His most prominent work is *Gitanjali*, for which he was awarded the Nobel Prize in 1913, (being the first Asian to do so) *Home and the World*, *Gora*, *Sonar Tari*, *Raja*, *Kalpna*, *Shesher Kabita* etc. He also wrote national anthems for India and Bangladesh. No modern Indian writer, however modern, could deny his all pervasive influence in his/her works which helped to introduce west to the essentials of Indian culture.

**W.B. Yeats: (1865-1939)** It would not be an overstatement to term him the greatest Irish poet and playwright. He was a prominent figure of Irish literary renaissance and his early works were an amalgam of elements of symbolism, and intense nationalism. In later years his genre moved to physical realism. His *Sailing to Byzantium*, *The Tower*, *The second coming*, *The Wind Among the Reeds* contain some of the greatest verses ever written in the English language. His prominent dramatic works are *The Countess Cathleen*, *The Land of Heart's Desire*, *The Hour Glass* etc. He received the Nobel Prize in literature in 1923 which was an ideal culmination of his illustrious literary career.

**Jean Paul Sartre: (1905-1980)** A leading purveyor of existentialist philosophy, his writings capture the perennial human dilemmas. His works project the individual as a lonely being with a sense of responsibility, moving in a meaningless universe. His core idea is that individuals have the freedom to choose and every choice has a price associated with it. He influenced contemporary world literature immensely. His major works are *Being and Nothingness*, *Fires*, *The Respectful Prostitute*, *Nausea*, *The Age of Reason* etc. He

was awarded Nobel Prize in 1964 which he declined.

**George Bernard Shaw: (1856-1950)** His dramas not only dominated the first-half of the 20th century literature but also left an indelible influence for generations to come. The Irish playwright introduced topical concerns in dramatic works and pepped them up with wit and wit. Many of his plays are apparently delightful satires of the then prevalent society in U.K. their inherent universality enable them to be apt comment on every so called civilised society of contemporary times. The way he satirised conventional romantic attitudes about love and in his celebrated play *Arms and the Man* is a lesson for every playwright. He was awarded Nobel Prize in literature in 1925. His other prominent works are *Candida*, *Androcles and the Lion*, *Pygmalion*, *Man and Superman*, *Major Barbara* etc. What Joyce has been to twentieth century novel, what Eliot has been to modern poetry, identical to what Shaw has been to drama.

**Gabriel Garcia Marquez: (1928 - )** founder of magic realism, he is regarded as one of the most potent exponents of modern world literature. Though he is a Columbian writer, the transcending quality of his literature crosses all geographical boundaries and has had to be acclaimed world over. The chief exponent of the writing style of magic realism, he made a decisive presence in the post World War II literature. Without him, the post World War II literary world would have been incomplete. His prominent novels are *Love in the time of Cholera*, *One Hundred Years of Solitude*, etc. Won the Nobel Prize in 1982.

**Virginia Woolf: (1882-1941)** She was one who made experimental fiction popular to the average readers. She is widely hailed as one of the most international woman writer of this century.



She also had feminist elements in her writings and is a much admired name in the genre of feminist literary criticism. Her major novels are *Mrs. Dalloway*, *To the Lighthouse*, *Between the Acts*, *Orlando*, *A Room of One's Own* etc. Her *Orlando* is a classic case of experimental fiction where a person lives a given time frame as a man and then another frame of time as a woman.

## Arts

### (Music, Painting, Dance)

**Pablo Picasso: (1881-1973)** This Spanish painter who had made France his home, has been acknowledged as one of the greatest painters of all times. He was one of the prominent founders of modern art and is undoubtedly the most important painter of the twentieth century. His artistic works have left a significant impression on numerous modern painters and his myriad styles, each of them singular in nature, formed major edifices of modern art. His career was usually demarcated in four distinct periods known as 'blue period', 'rose period', 'periods of analytical cubism' and 'synthetic cubism'. He founded the idea of cubism where objects and human beings are represented in the form of cubes. This facilitated his idea of expressing multiple viewpoints. *Guernica*, *Old Woman*, *The Old Guitarist* etc. are some of his world famous paintings. In later life, he turned to sculpture, ceramic and graphic arts. Through his art, he many a times voiced the concerns of his indomitable spirit against the upsurge of fascism.

**Salvador Dali: (1904-1989)** One of the

leaders of the surrealist school of painting, he developed 'paraonic critical' method where he liberally used Freudian imagery. His paintings could carry several meanings and identities. For example in his *The Metamorphosis of Narcissus*, Narcissus can be viewed either as a figure or as a rock formation. Very few could express the expressions of the subconscious mind better than Dali.

**Anna Pavlova: (1881-1931)** One of the greatest dancers of all time. This Russian ballerina made her debut in 1899 in St. Petersburg. She made her London debut in 1910 and from there on, her fame knew no geographical boundaries. She made many world tours and everywhere she enthralled audiences with her spellbinding fluid movements and grace on the stage. *The Dying Swan* is the most famous of her scintillating performances.

**Yehudi Menuhin : (1916-1999)** Probably the greatest violinist of the twentieth century, he was born in the U.S.A., to a Jewish family. He made his debut in San Francisco, at the age of 7 and very soon became a world renowned figure in the field of music. His first concert at Berlin took place when he was few days short of thirteen. He travelled all over the world winning accolades and admiration of millions through his out of the world violin performances. Founded Yehudi Menuhin school of Music at Surrey, England. He played with all the musical greats of his time including our own Pt. Ravishankar and till last, despite being a great western musician, remained an active promoter of Asian music. This great virtuoso, who took British citizenship during his later years, received honorary knighthood in 1965. He was bestowed with the title of Lord in 1993. Despite his love for classical works, he remained a tireless experimenter with different repertoires.

**Martha Graham: (1894-1991)** Modern



dance owes immensely to this American lady who was probably the greatest choreographer of the twentieth century. She is also being regarded as one of the greatest dancers of the modern times and an eminent teacher of dancing technique. Her works embodied highest level of theatrical quality. She had evolved and developed her own technique of dance and in that field she was a pioneer

in many ways. She founded her company in 1926 and choreographed more than 150 works. Many of her works have tremendous contribution to the growth of modern dance form. She also nurtured many leading luminaries of western dance in this century and had also heralded important artistic trends through her collaboration with leading artists and composers. After the world was endowed with her dancing genius, choreography was never the same again. It was much more mature and expressive than it was before.

**Zubin Mehta: (1935 - )** He is one of the most eminent musical conductors of the century. The Indian born musician is the conductor of the world renowned Israel Philharmonic Orchestra and New York Philharmonic Orchestra. He had given many of scorching performances round the globe where he had not only showcased his absolute mastery over a centuries of the western music but also made the world spellbound by the lucidly of his handling of difficult compositions.

**Bob Dylan (born Robert Zimmerman) (1941 - )** Within a short span of a decade he changed the public perception in the west regarding pop music. This iconoclast American

songwriter, composer and singer shot into limelight by making his great music, a potent weapon to voice social concerns of the 60's. Very soon the appeal of his songs crossed geographical boundaries and became the song of every individual in every nook and corner of the world, who has the courage to think differently. Many of his songs, regarding attitudes towards life are truly universal in content and refreshing in form and treatment. His enduring legacy made not only an undeliable influence among his contemporaries but also on the next generation of pop musicians. Dylan's *Blowin' in the Wind* is his most famous song which opened the eyes of an entire generation of alienated American youth to the futility of war. He also made a deep and profound influence on folk and rock music and still remains a cult figure in the field of western music. His influence has been recently manifested in a special branch of modern Bengali songs - the *Jeevanmukhi Gaan*, which thrives on projecting day to day life experiences and perceptions of life in general with unconventional perspective and insight.

## Politics

**Sir Winston Churchill: (1874-1965)** Besides being a peerless statesman he was also a good soldier and a great writer. Many are of the opinion that his astute handling during the World War II helped the allies win a decisive war against the axis. He was undoubtedly one of the greatest heroes o





the world during the World War II. When out of office from 1929 to 1939, he issued repeated warnings of the threat from Hitler's barbaric aggression and when he at last replaced Neville Chamberlain to become the Prime Minister of England, he showed his true mettle. His stirring oratory, shrewd diplomacy dynamic leadership and his steadfast refusal to make any compromise with Hitler made him a cult figure. Without his leadership the world might have been a much worse place to live in with Nazi barbarism ruling the roost. His revaluation of the pound and his handling of the general strike of 1926 was though controversial, was innovative. He was twice elected Prime Minister of England (1940-45, 1952-55) and besides that also wrote several biographies, histories and memoirs. He won the Nobel Prize for literature in 1953. Moreover, he was also a good soldier during his salad days. He fought in India, Sudan and South Africa and earned his reputation as a fighter before embarking on an all time great political career. Truly, this great statesman of all times was also one of the most multifaceted personalities of the twentieth century who shaped a nation's future, created great literature and fought hard battles.

**Theodore Roosevelt: (1858 - 1919)** His period of Presidentship of the U.S.A. (1901-09) is characterised by many far reaching reforms. He was instrumental in mushrooming of the culture of entrepreneurship in the country. From 1906 onwards his progressive reforms aimed at facilitation and regulation of big businesses. His revolutionary Pure Food and Drug Act helped curtail the prevalent malpractices in the food industry. He also pioneered conservation legislation and was the man behind the construction of the Panama Canal. He gained immense popularity due to his handling of Spanish American war. His astute

diplomacy and timely mediation helped to end the Russo Japanese war and for this he won the Nobel Prize for Peace. Definitely one of the greatest statesmen of twentieth century.

**Ho Chi Minh: (1890-1969)** This Vietnamese nationalist leader was one of the greatest political figures of the world. In 1911, he left Vietnam and lived in U.K., France, the U.S.A. Later he shifted to Moscow and in 1930 founded the Communist party of Indochina. In the midst of World War II, he returned to Vietnam and led the Vietnamese movement for independence. His valiant exploits against the Japanese made him a cult figure. After the Japanese withdrawal Vietnam became independent with Ho Chi Minh heading the republic. However, French tried to gain control which resulted in the French Indochina war where he managed to dismantle the French colonial regime from his country. He became the first President of North Vietnam after Vietnam was divided in the Geneva Conference (1954). Even in later years his unflagging spirit led him to fight a fierce battle with the U.S. supported government of South Vietnam which eventually ended in 1975 with a North Vietnamese victory. He remained a true socialist and the champion of the underdogs till his last day and his spirit that could withstand constant struggle is a source of inspiration for many.

**Margaret Thatcher: (1925 - )** One of the most prominent politicians of the post World War II era. She is the first woman prime minister of U.K. Elected in 1959 to Parliament, she rose to become the Prime Minister in 1979. She belonged to the Conservative Party. She can be credited with reviving the







sagging U.K. economy of the early 80's by her bold policy of increasing privatisation. Her economic and political policies can be clubbed together as Thatcherism which eventually made U.K. again a power to reckon with in the global political map. She also made a bold step to regain the Falkland islands from Argentina when Argentina seized it. She governed U.K. from 1979 to 1990 at a stretch and thus became the longest serving British premier of the 20th century. She won three successive election victories. Despite her slightly dictatorial style of functioning, she achieved an enduring popularity among her peers and the common masses in general.

**Mao Tse Tung: (1893 - 1976)** The harbinger of the revolution in China which culminated in 1949, he is being regarded as one of the greatest political personalities of the twentieth century. He was the founder of the People's Republic of China and was instrumental in building of the Red Army. He was one of the original members of the Chinese Communist Party and became one of its chief powers when he organised his famous Long March (1934-35). This great communist revolutionary managed to at last free China from feudalistic oppression when he established socialist rule in China in 1949. He became the first chairman of the People's Republic of China.

His long regime is characterised by many controversial reforms. His Great Leap Forward (1958) fell flat on its face and could not achieve its desired objective of ushering economic growth. His Cultural Revolution (1966-69) was an equally controversial social reform programme designed to purge the system of

corruption and revitalise its basic institutions. The revolutionary Red Guards allied with the army to launch a scathing offensive against the so called bourgeois elements in government and cultural sphere. The Cultural Revolution only led to widespread violence and anarchy and led to the fall of many top ranking Communist party officials such as Lin Biao.

However, besides all this, Mao Tse Tung's immense contribution in transforming China from a backward, feudalistic state to a modern nation which is a force to reckon with in the international sphere would not go unnoticed in the annals of history. He was instrumental in making China fit for the twentieth century.

**M.K. Gandhi: (1869 - 1948)** A former barrister, who practised in London and South Africa, he went on to become the leading light of India's struggle for freedom against the British rule. His unique form of struggle for independence which was based on his central treatise of non-violence, not only took India by storm but also created ripples around the globe. Many luminaries and leading exponents in their chosen fields became his ardent admirers. Among them G.B. Shaw and Albert Einstein deserve special mention. He was the ultimate voice in Indian National Congress though not being a formal member of the party.



He used his unique technique of Satyagraha [resistance through non-violent means] in the Non-Cooperation movement in 1920 - 22. His Civil Disobedience Movement (1930 - 35) bears the same influence which was his guiding philosophy. His last of the



epic mass movements The Quit India Movement (1942) ultimately broke the resolve of the mighty British empire to continue ruling India. A tireless crusader against untouchability and an avid supporter of agrarian based economy, he was the chief architect of India's freedom. Though many of his ideas regarding too much stress on village economy and abhorrence for machines etc. have major conceptual flaws which if implemented in totality would have taken India centuries back, there is no denying the fact that without Gandhi an independence struggle would not have that potency. He played a pivotal role in unifying a diverse and often conflicting India into a modern nation with a common cause of freedom from the British rule. He withdrew from politics after India's independence and in 1948 was assassinated by a fanatic named Nathuram Godse.

**V.I. Lenin: (1870-1924)** He was the man who first gave a practical shape to Marx's theory when he pioneered the formation of the world's first socialist state after the success of 1917 revolution. He was one of the major forces behind the formation of U.S.S.R. He was interested in Marxist studies since his early youth and for agitation he was exiled in Siberia in 1895. In 1900, he along with his wife, left for W. Europe and there he came in contact with eminent socialists. He founded Bolshevism and returned to Russia at the outbreak of 1905 revolution. However, he left in 1907 and continued to evoke socialist ideologies through his writings. He became a pivotal member in the social democratic party politics in the Western Europe. In 1917, he returned to Petrograd (later known as Leningrad) and led the Bolsheviks to overthrow the provisional government of Kerensky. Thereafter, he managed to establish the first socialist state of the world in the form of U.S.S.R. He was the first to create something akin to

dictatorship of proletariat, as visualised by Marx. However, in later years he understood the socio-economic perils of total state control that socialism entails, and in this regard he announced New Economic Policy (NEP) in 1921 to boost economy. His celebrated book *Imperialism, Highest State of Capitalism* shows his conviction about the immediate failure of capitalism and concept of a revolutionary party very lucidly. It is a thought provoking and ground breaking work in the field of socialist literature.

**Nelson Mandela: (1918 - )** This law-turned politician was the pivot of the African National Congress, which was the most potent voice against the oppression unleashed by the apartheid regime of South Africa. He was very much influenced by the philosophy of Gandhi and applied Non-Co-operation strategy in South Africa in his struggle to give the blacks a rightful place in the society. Even 26 years of imprisonment on subversion and sabotage charges (1964-90) failed to erode his unflagging commitment to fight against the racist regime. In 1990, he was released from the prison and the ban on the ANC was lifted largely because of international pressure. He thrust ANC to the portals of power and gave South Africa its first non-racist democracy. He became the first black President of South Africa in May 1994. He resigned from the party and retired from the public life this year, after giving the evil of apartheid a mortal blow. Nelson Mandela is being regarded as one of the chief protagonists in the struggle of the blacks for dignity.



**Aung San Suu Kyi : (1945 - )** This Myanmar opposition leader is waging a relentless but peaceful war to restore democracy to her country despite all odds. She was under house arrest for six years by the military junta, which has been suppressing the democratic spirit of the electorate through brute force. Suu Kyi has not only



become the voice of democracy for her Myanmar people but also a symbol of hope, courage and freedom for all the oppressed people around the globe. This true champion of democracy was awarded Nobel Prize for Peace in 1991. No amount of oppression by the military regime could subjugate her charisma among the masses of her country, who are looking upto her for a change.

## Icons

**Mother Teresa: (1910-97)** (born Agnes Gonxha Bojaxhiu) The apostle of love and sacrifice, she was a fresh whiff of humanity in this largely inhuman world. She was an Albanian but she made India, or more specifically Calcutta, her home. She came to Calcutta at the age of 18 as a nun on a teaching assignment. In 1948, she left her teaching career and founded the world famous Missionaries of Charity. She made her base of the Calcutta, but her mission spread throughout the world. Her herculean efforts and great vision made Missionaries of Charity an oasis for the poor, destitute, ill and needy and orphaned children. Now this mammoth organization operates schools, orphanages, hospitals etc. in more than 270 countries around the globe. Though there may be some who would not agree with her strong



views regarding many controversial issues but there is no denying the fact that her life long efforts, along with her other sisters, to the cause of humanity and selfless service have immensely helped to alleviate the misfortune

of millions around the world.

**Henry Ford: (1863-1947)** Arguably, one of the greatest industrialists of the twentieth century, he fostered the age of automobile. In 1892, he produced his first motor car and from then on there is no stopping the vision of this visionary engineer, who went on to become one of the greatest entrepreneurs of the modern world. In 1903, he set up Ford Motor Co. and went on to produce the cheapest possible but standardised car for the millions. He had the dream of making his car affordable to every American. By 1908, his model T was introduced which soon became a rage. It sold 15 million before it was discontinued in 1928 to introduce a new model - Model A. However he was much, much greater than merely a great car producer. In 1914, he was paying his workers 5 dollars for a 8 hour day, which was much higher than the market rates. He also introduced a profit sharing plan among its employees. Besides being a great entrepreneur and a visionary management expert he was also a peerless philanthropist. Ford Foundation is the result of one of his several philanthropic pursuits.

**Charlie Chaplin: (1899 - 1977)** Possibly the greatest entertainer of modern world he was a peerless actor, director, producer. He also wrote most of his own scripts which he directed. He made the genre of serio-comic immensely



popular among the masses and as well as the classes. His enduring popularity is largely because of his incredible power to portray universal truths, often poignant and cruel, in the midst of his funny antics. This gave his millions of audiences the unique experience of multiple emotions; they were and still are laughing and crying, often at the same time, while watching his masterpieces which are truly benchmarks in the history of cinema. Some of his greatest films are *Citylights* (1931), *Modern Times* (1936), *Great Dictator* (1940), *Kid* (1921), etc. The fact that most of his films were made in the silent era, did not limit his appeal and many of them evoke emotions which transcend all the artificial barriers created by mankind. He was not only a great entertainer and a filmmaker but also a philosopher in his own right.



**Martin Luther King Jr. (1929 - 68)** This American clergyman and civil rights leader deserves a place among the greatest of heroes of the twentieth century. Though he lived only 39 years in this world, yet he managed to leave it as a much better place to live in, particularly for the blacks. He shot into global limelight by his year long boycott (1955-56) against the segregated bus lines in Montgomery which gave the blacks a potent voice of protest to centuries of oppression against them. It was followed by a plethora of nonviolent marches and demonstrations for blacks' rights. He set up Southern Christian Leadership Conference that became a pivot for organising such massive protests which stirred the global conscience and awakened millions. He infused the dream of a more equal world among many

oppressed blacks and facilitated in making the U.S.A. a more equal society than ever before. His voter registration drive in Selma, Alabama was particularly famous. He was awarded the Nobel Prize in 1964 for Peace. His work in the



late 60's to the opposition of the war in Vietnam economic discrimination was also noteworthy

**Beatles :** (John Lennon 1940-80, Paul McCartney 1942 - , George Harrison 1943 - and Richard Starkey 1940 - ) : This rock music group took the world by storm within a few years of arrival at the international stage. They all belong to the Liverpool, U.K. Their stage presence, their creative music, their passionate lyrics swayed a whole generation to their tune and made the group an icon in true sense of term. They dominated the world of rock music from early 60's to 70's and made numerous albums. The group broke in 1971, and John Lennon, the figurehead of this world famous rock group, was shot dead in New York by a crank, in 1980.

**Bill Gates: (1956 - )** This President and CEO of the Microsoft Corporation is the world's richest private individual at present. He has been holding this distinction for the fourth consecutive year. His fortune is a phenomenal \$ 62.25 billion but it is not simply that which made him an icon. He became an icon and the most popular role model for the 90's youth through his rags to riches story-a true story of exceptional genius and futuristic vision which made him the richest individual from a nobody, within a short span of two decades. This high school dropout has inspired a sizeable section of our new generation





see computer as their future. Bill Gates has been instrumental in making us arrive at the information age through revolutionising software industry. Before the arrival of Bill Gates the software industry was at its infancy. Now it is a giant with infinite possibilities for the future.

**Lady Diana: (1951 - 1997)** She was the daughter of the 8th Earl of Spencer and married Prince Charles of Britain in 1981. From there on she had been hogging the headlines quite frequently. Her flamboyant style, her elegance, her tumultuous married life, her adulterous affairs and her philanthropic works made her a cynosore of media. She was separated from Charles in 1992, divorced in 1996 and died in a car crash on 31, 1997, in a feverish attempt to escape the paparazzi. The world would remember her as the personification of grace and style, as the role model for many women of the 90's and as a regal lady with compassion towards the plight of common men and women.

**Michael Jackson: (1958 - )** The most famous pop icon of our times, his songs have become a part of lifestyle of millions of teenagers across the world. He is a peerless performer on record or in the concert. He has sold more than 150 million copies which is many times more than the legendary Beatles. His most famous album 'Thriller' (1982) was an export and became a craze. His 1987 album 'Dancing Queen' has also taken the world by storm. His music is an uncommon combination of pop, funk and rock. Besides being a multi-millionaire and a sensation, his dancing and choreography skills are also extraordinary and have added immensely to his enormous popularity in the field of music. He has also founded the He is the World Foundation for the orphans and orphaned children.

## Sports

**Pele: (1940 - )** (born Edson Arantes do Nascimento) - He is being regarded as the greatest soccer player ever. His glittering career was marked by several milestones which reflected absolute mastery over his craft. This black genius from Brazil joined his country's famous Santos Club at the age of 16. His celebrated football career got a boost when he, along with his team, participated in the



1958 World Cup at Sweden. There his display of mastery over the ball caught global attention. From then onwards, there was no looking back for him. He played a pivotal role in the 1962, and 1970 World Cups too and helped Brazil to win the title thrice. He scored more than 1000 goals in international matches with an awesome average of one goal per game. He retired in 1977 after a two year stint with the Cosmos club in New York.

**Mohammed Ali (born Cassius Marcellus Clay) (1942 - )** - He shot into limelight after winning the Olympic Gold Medal in boxing in 1960. In 1964, he won the world heavyweight crown by vanquishing Sonni Liston in 1954. However, he was stripped of his title when he refused to be inducted to U.S. armed forces, for religious reasons. In



1971, his appeal was upheld by the Supreme Court of the U.S.A. He regained the title again in 1974 when he defeated George Foreman. Though he lost the world heavyweight title to Leon Spinks in



78, he managed to get the title back for the rd time by defeating Spinks at the end of his emationally renowned career. His is being rderd as the greatest boxer of all times and not hout reason. For almost two decades he called e shots in the ring and flew like a butterfly and ung like a bee. His opponents found it truly for- dable to face his expert punches and restrain s guile movements on the ring.

**Michael Jordan: (1963 - )** This basketball perstar has enthralled millions of basketball fans wrld over and is a cult figure in his home country he U.S.A. He recently announced his retirement rm the competitive arena of professional bas- tball. He played

irteen years for hicago Bulls dur- g which he gave e world the best of asketball. He was e of the highest aid athletes of the wrld with an impact more than \$ 10 illion on the U.S. onomy. He is Chi- go Bull's all time ading scorer and e third all time lead scorer in National Basket- all Association, with 29,277 points. His career oring average of 31.5 is highest for any player e NBA history. He not only made millions for imself through his talent but also made the for- unes of his club Chicago Bulls and the NBA soar.



**Sunil Gavaskar: (1949 - )** This awesome un accumulator and sheet anchor opening bats- man would go down in the history as one of the ricketing legends. He holds the world record for coring the maximum number of test centuries

(34) in 125 test matches. He also has the distinc- tion of scoring the second highest number of runs in test cricket (more than 10,000) and scoring test centuries in both innings on three occasions (un- equalled by any one). But records apart, it is very unfair to judge Gavaskar only on the basis of sta- tistics. The courage and technical perfection with which he faced the world's best fast bowlers need only to be seen to be believed. He was also a master player of spin bowling. Particularly in a deceptive turning track, the difference of sheer class between him and the lesser batsmen used to stand out. His valiant and technically superb 96 on a turning, underprepared track at Bangalore, in the last test of the Indo Pak 1986-87 se- ries, calls for a special men- tion.



**Sir Donald Bradman: (1908 - )** He is cricket's most outstanding batsman. None till now could match this Australian's world average. He played 52 tests and scored 29 centuries in them. He made 6,996 test runs with an incomparable average of 99.94. He is also the only batsman to score two triple centuries in test cricket. But more than the runs, the way with which he scored those

runs speaks volumes about his genius. In his heydays he thoroughly demolished any kind of bowling on any type of pitch. The best of the international bowlers of his times were reduced to mere school boys when faced with his



formidable batting powers. In his test playing years (1928-48) he was truly a magician with a wand who scored runs at his free will, with utmost nonchalance. Unfortunately, in his last test innings he ended up with a duck. Only four runs would have earned him an average of 100 in tests.

**Steffi Graf:** Recently this tennis legend announced her retirement from the game but before that she not only did make some outstanding achievements that would not be easy to beat but has also raised the standards of women's tennis to unprecedented heights. She has won 22 Grand Slam titles, only two short of



player to get a WTA ranking. Then she was only 13 years and four months. ■■

Margaret Court's 107 WTA titles and has the record of being World's No.1 for 377 successive weeks. In 1988, along with the Grand Slam title she also won the Olympics Gold medal at Seoul. She is also the youngest

# INDIA IN THE 21ST CENTURY

## CHALLENGES AND STRATEGIES

■ SWARNENDU BISAL

■ AMIL KUMAR DWIVEDI



celebrations and 'feel good' mood, associated with the advent of the twenty first century and a new millennium and must dwell into the myriad problems, plaguing our socio-political and economic scenario since the medieval ages. For if we as a society, do not wake up to the gruesome realities that characterise the twenty first century India, our entire national identity may be jeopardised in the near future which would only encourage fragmentation and disintegration. Thus, for our sake, we must address the crucial issues which are posing seemingly insurmountable challenges before us. However, whatever is apparent is may not necessarily be true. A judicious handling of some of these issues may solve them permanently.

### Challenges before us

One of the foremost issues that demands urgent attention is the pressing problem of illiteracy. According to the 1991 census, India is a country

In the new millennium, India, both as a modern nation state and as well as an ancient civilisation is faced with many challenges which deserve serious concern and thought. So, we should give ourselves some respite from the incessant

with only 52.21 percent literacy rate. (the figure exclude the data pertaining to Jammu and Kashmir). That means close to 48 percent of Indian population, as per 1991 census, is dumped into the dark realm of illiteracy. The figure is depressing, but it becomes still more dismal if we give a glance at female literacy rate, which according to 1991 census is only 39.29 percentage. India has also the distinction of being the country with the largest number of illiterate population in the globe. Unless we make giant strides to eradicate or atleast substantially reduce the rate of illiteracy in general and female illiteracy in particular, our modern nation state would remain, by and large, an essentially feudalistic society. A set of diseases which has been plaguing our society since the ages stem from illiteracy and lack of education. Some of them are huge population growth, (in absolute numbers) rampant poverty, lack of skilled manpower, prevalence of superstitions and evil customs like dowry, early marriage, glorification of sati, female infanticide etc. The ominous influences in our socio-cultural scenario would perpetuate if we fail to tackle the monstrous influences in illiteracy successfully, in the early years of the twenty first century.

India boasts of being in the elite club comprising nuclear states but sadly this nuclear state still has more than 40 percent population languishing in poverty. For whom day to day living is an ordeal, with empty promises by our high and mighty politicians providing little succour. The much touted liberalisation has done precious little to alleviate the sufferings of the marginalised sections of our society. It is distressing that the impact of globalisation in India has served the interests of the cream of the society and neglected the urgent needs of the underprivileged, thus further widening the already yawning gap between the rich and the poor of India. Thus, Indian economy of the twenty first century would never truly progress if it continues to indulge in chest thumping on the basis of spread of cellular phones and internet and increasing introduction of luxury cars among

its metropolitan elites amidst *not* so (!) disturbing news about Kalahandi and other starvation deaths. In order to tackle poverty, our economic policy should be endowed with welfare oriented characteristics and not simply an elitist one.

The burgeoning population of India is another cause of concern. Already bustling with a population of 1 billion, (according to the esteemed demographers of the UN) India adds the population of Australia, on an average, to its existing population every year. Infact, it adds more people to the world each year, than any other country of the world. In 1991, the population of India was 846.3 million which showed that within a small time frame of nine years it has increased its population size by atleast (if not more) 113.7 million. If we see in terms of 1947, we realise that India's population, which was a mere 345 million at the onset of independence, has almost tripled itself. What is more, the population growth is showing no signs of abatement in recent years. The annual growth rate of our population is 1.6%. Its population density has also enhanced from 103 in 1941 to 267 in 1991. From the above mentioned perplexing figures we can make only one simple conclusion. That is if we as a nation fail to address the population problem on a war footing most of our benefits accruing from our economic growth would continue to be eroded and we would never be a country to reckon with in the international sphere. More importantly, we would always be hard pressed to cater to even the most basic needs, with our limited resources, of our teeming millions which are continually increasing.

A twenty first century India should ideally be free of child labour and exploitation of women but sadly it doesn't seem to be the case. Children are employed in hazardous occupations like carpet industries, glass factories or match factories etc. for a pittance while the government looks the other







way. The official figure of child labourers in India is 44 million and many of them are employed in hazardous professions despite the fact that it is illegal. Child Labour (prohibition and regulation) Act, 1986 is at present a toothless tiger

even make a semblance of a state. However, the attention not only from depriving millions of their true potential, our two stand the risk of losing of our invaluable human could be detrimental to run.

Modern India is a caste conflicts and religious heritages of India the survival of this 5000 sible, is under serious reservation for the SC/ST reduction of reservation (scenario of rampant opportunities that character, have further enhanced many sections of the s are being viewed with general candidates as chunk of seats for the fed and competent categories do not get a or a seat in a profession

institute whereas (parent counterpart easily. Thus reservation India is based on pay Paul and w antagonism. It come wise with the b

Re-ugly h... first cent... and inter... falling pr... goes unim... the secular... the near fu... nsing inst... the horrible

ers who employ children for a much lower wage rate than the market rate in hazardous industries and make them slog for 13-14 hours a day, thereby depriving them of their childhood. The children are also exposed to grave risk of their lives and limbs while working in hazardous conditions. A sizeable section of our children do not get any basic education, whereas on the other hand we spend one third of the total investment on education on higher education. Instead of basic education to the children our policy makers have implicitly emphasised on 'mass higher education' which has only perpetuated unemployment and underemployment. Whereas on the other hand millions of children continue to get their 'education' in the factories of Shivkasi.

Our culture glorifies women as goddess but in reality they are, by and large, at the receiving end of the feudalistic, patriarchal society. Dowry, female infanticide, apathetic treatment towards the female child are only some of the cruel practices being carried out against the underprivileged Indian women of the twenty first century. The sorry state of majority of women in India is reflected in the deplorable sex ratio of 927. It means for every 1000 males there are only 927 females. In 1991 the figure was 931. The gender equity is a long, long way off in rural, hardcore feudalistic Bharat, but even in cosmopolitan India, the gender prejudices though subtle are deeprooted in the psyche of millions. Unless our government and as well as we as a society, take extra efforts to create a better tomorrow for our millions of children and women from the marginalised families, we couldn't

two minor sons being charred to death; which still numbs us with its explicit brutality. Twenty first century India should make earnest efforts to make itself a nation truly devoid of religious prejudices. For this, reactionary elements must be shunned, condemned and if necessary, harshly punished to drive home the point regarding our essentially secular traditions. It should be seen by the government that they are not allowed in any way to sway their vote banks to violence and arson, in the name of religion, for their own vested interests.

The above-mentioned negative influences on our socio-economic scenario only elaborate on the broad contours of our enormous body of challenges which we as a nation must overcome to be really in the twenty first century. Otherwise, various sections of India would continue to be wrapped in their respective 'time machines'. Some segments would languish in the eighteenth century, some nineteenth, whereas a miniscule proportion of elites may whizz past the twenty first century and enter the twenty second. For the underprivileged masses, the return to the prehistoric age may be the only alternative as then they would at least escape competition and unrest of the modern age amidst the continuous threat of starvation and continuous presence of disease, filth, illiteracy, exploitation, unemployment and violence. Besides the above mentioned problems the ever galloping unemployment and underemployment, low per capita income, low rate of saving and investment, lack of even the basic sanitary and health facilities to the sizeable section of the population (640 million without access to proper sanitation, 135.2 million without access to health services) huge infant mortality rate, high maternal mortality, piti-

able condition of the physically challenged with little social concern for them, threat of spread of AIDS and also the continuation of the current recessionary

phase in the economy are some of the nagging problems which would make any conscientious Indian of the twentyfirst century extremely perturbed. They all need an urgent and comprehensive solution or atleast abatement.

## What needs to be done

A twenty first century India is still not free from most of the ills that have been plaguing it since the ages. But, we should not lose hope. Instead we should force the government to become proactive in eliminating the ominous characteristics so that atleast in the second half of the twenty first century, that is fifty years from now, we can be truly a modern, developed nation. Politicians, bureaucrats, conscientious citizens and intellectuals should play their respective roles in this giant endeavour.

The population problem should be holistically tackled. For this, not only the people should be sensitised about the family planning benefits through the imaginative usage of print and audio visual media but child labour should also be eliminated from our society. This would then prevent the population from the marginalised families to send their children to work and thus they would cease to treat their children as an 'economic asset'. Hence, they would then refrain from producing more and more children which are now used to supplement their marginal incomes. At the same time, literacy and more importantly education, should be spread at the grassroots level to induce the rural people to do away with the hankering for the male child; which is one of the chief factors behind our significant population growth.

The freedom of a large section of our populace from their feudalistic mindset through education would in turn improve the status of the girl child and consequently of the women, in our society. However, the process would take a long time





as all social processes do but there is no denying the fact that education in general and to the women folk in particular, would not only improve their perceptions in our society which would be reflected in the higher sex ratio, lower precedence of female infanticide and ma-

tternal mortality but would also make them self reliant and confident with a mind of their own. At the same time it must be added that the education of women on a war footing must be followed up by adequate employment opportunities for them. Then only they would be independent in true sense which would automatically remove the evil custom of dowry from our society.

In the twenty first century the priorities of our policy makers must change. Instead of being carried away by the mantra of globalisation which gives greater precedence to making the luxuries more affordable to the upper classes of the society than to produce necessities for the deprived and the underprivileged, our policy should be truly committed to create a more egalitarian society. For this emphasis should be given to produce more and more necessities at minimum possible prices, which would cater to the basic needs of the millions languishing in poverty. For example production of drought resistant crops should be given encouragement over the designer clothes. At the same time huge productive investment must be made in the infrastructure sector which is necessary to revive the economy and facilitate its growth in rural areas. Employment generating schemes should gain priority. Investment in these areas should gain precedence, where the potential of employment generation is high.

Populist policies are no answer to the growing problem of poverty. Poverty could be tackled only through increase in productivity and the introduction of profitable employment generation schemes and not by subsidies and loan melas.

The economic growth must be given a development perspective to make its benefits trickle down to the underprivileged sections of the society. Moreover, our economy should also experience significant shift towards industrialisation. Till now more than 60 percent (approx) of the labour force is dependent on agriculture and industry accounts for less than 20 percent of the labour force. Unless the topsided ratio is altered to some extent our poverty cannot be holistically tackled. Agriculture of our country, with its outmoded technology (for majority of the agriculturalist) cannot even think of sustaining such a large population.

Caste tensions and religious acrimony need to be eliminated from our social fabric as soon as possible. For this, scraps of caste based reservation, which have only succeeded in generating antagonism between the SC/ST/OBC and the generals must be stopped. Then only the government can imply a message that all are equal and only efficiency or merit matters for a particular post or a seat. This will help to remove brewing ill will among the not so fortunate general category students, who are at the receiving end of this patronising policy adopted by the successive governments for the sake of vote banks.

Religious intolerance should be shunned by the establishment and as well as the common people in general. Regarding this, media, intellectuals and artists can play a very constructive role. Secular tradition of our country can be prevented from getting jeopardised only if we, as a modern nation and as the torch bearers of an ancient glorious civilisation, make sincere attempts to stand up to fundamentalism. At the same time however the establishment shouldn't show any undue delay to bring to book the culprits responsible for spreading dissension and religious hatred. It should as to send a clear signal that India has been a pluralistic society and would continue to be so. We shouldn't tolerate any vested interests among our 'rulers' regarding this, as religious intolerance if unchecked could prove to be our own predicament by paving way for fascism. ■■

# VIEWPOINT

## Indo-US Relations Need for a paradigm shift

■ Manoshi Kumar ■



The Indo U.S. relationship, in the wake of recent developments during the last one and a half years, have assumed a new significance, as per as our foreign policy is concerned. The Pokhran II nuclear tests, the haggling over signing of CTBT, the Kargil episode, the WTO meet at Seattle, the failure of ninth round of Talbott Singh talks, the recent hijacking and the impending threat of global terrorism associated with it, have brought the Indo U.S. relationship back into focus. Both the countries need to improve upon their existing relationship after re-evaluating the above mentioned recent developments in proper perspective. In this unipolar world India cannot afford to antagonise

the U.S. and still secure its economic and political interests and neither the U.S., with the deterioration of its ties with Pakistan, can afford to completely ignore India or treat it as a thorn in the flesh.

**Background :** Indo U.S. relationship, since the advent of India's independence to the Indira Gandhi's assassination, can be termed as cold at best and acrimonious at worst. Despite the right political noises during the Nehru era regarding NAM (Non Aligned Movement) there is no denying the fact that India, in the nascent years of its independence, had a pro Soviet tilt, which alienated the U.S.A. Besides that, Nehru's love for socialism was also not in strict conformity with its professed non aligned policies. Naturally, the Indo U.S. relationship started getting sour in due course, non-withstanding Kennedy's timely help to India, which facilitated the government to resolve a precarious food crisis and ultimately, usher in the process of green revolution.

During Indira Gandhi's regime, the Indo U S relationship plunged to an all time low. Indira's support to the then Soviet Union was much more apparent than that of Nehru, which further antagonised the U.S.A. Then Indo Russia friendship was bandished by the ruling regime with gusto. During the 1971 Bangladesh war, the U.S.A even send its 7th fleet in the Indian ocean to threaten India but was forced to eat humble pie



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During Indra Gandhi's regime the Indo U.S. relationship plunged to an all time low. India's support to the then Soviet Union was much more apparent than that of Nehru, which further antagonised the U.S.A. Then too India's friendship was brandished by the ruling regime with gusto. During the 1971 Bangladesh war, India even sent its 150,000 troops to the front lines, a threat that our US allies could not

when the then Soviet Union expressed its willingness to help India. During Soviet Union's control over Afghanistan, India took the Russian side by ignoring the atrocities perpetrated by its (Russian) armies. However, with Rajiv Gandhi becoming the prime minister of India, things started to change. Rajiv Gandhi's stress on privatisation and decentralisation and doing away with excessive bureaucratisation could be viewed as a marked shift from the socialist ideologies of hitherto post independence India. Obviously it pleased the U.S.A. and signs of improvement in the ties started taking shape.

In 1991, with the collapse of the Soviet Union and the liberalisation of Indian economy, the Indo U.S. relationship assured a marked improvement. As the Soviet Union collapsed, India's top political brass were perplexed and left with no other alternative but to develop a friendly stance towards the only remaining super power—the U.S.A. The world suddenly became unipolar and India could no more afford to antagonise the U.S. without the protective umbrella of the Soviet Union. Furthermore, the liberalisation of the Indian economy, opened up new markets for multinationals from the U.S.A. and other western countries which made U.S. Congress sit up and take notice of India. Suddenly the potential purchasing power of the Indian economy became an object of research. The liberalisation of the Indian economy gave an impetus to the Indo U.S. ties as many U.S. investment along with other foreign investments, kept pouring in our economy.

The relationship of India with the U.S., under the previous tenure of the present BJP government took a beating again in the wake of the Pokhran blasts. Government's steadfast refusal to sign the CTBT has further aggravated the political temperature in the U.S. Congress. However, after the Kargil war, U.S.A.'s relationship with the Pakistan has worsen which is a welcome sign for India. The U.S.A. desperately needs an ally in the subcontinent and in the absence of Pakistan, the most viable alternative is now India. USA may

think on the lines of hurting India as a friend, strengthen its control over the South Asian affairs. The latest development of global terrorism has raised the possibility of a common meeting ground for the U.S.A. and India. The following are the broad contours of the Indo-US relationship after the Pokhran blasts.

**Pokhran II aftermath :** After the Pokhran II tests, the United States issued warning to India not to conduct any missile strikes on Pakistan. It was Washington's double standard and double speak after the 'Desert Fox' operation on Iraq and NATO's bombardment on Yugoslavia. The policy makers remained silent towards the rise in state terrorism faced by India side by side its softer leverage towards Pakistan ignoring the terrorist camps running within its territory. The response to Pakistan after Chagai test was muted except for the unconditional signing of CTBT.

The Big Five N'club made it clear that no other state would be permitted into this club. They simply want to retain their superiority by enriching their arsenals. Recently a report published by the Brookings Institute has indicated that the US spends 14% of its defence budget on nuclear weapons. Side by side, the United States Secretary of State Madeline Albright made it clear that India can't be admitted to the N'club because the 1968 NPT could not be amended.

The Vajpayee Government left no stone unturned to convince the US and Western powers about the intensity of Pokhran II. He also made it clear that India is committed to not to use nuclear weapons at first and not against any non nuclearised nations. The tests were conducted only for security purposes in a geographical scope that goes beyond the subcontinent.

**Sanction strategy :** Just after the Pokhran II tests, the Clinton administration imposed multifaceted sanctions on India. The most important were the economic sanctions under 102(b) of the US Arms Export Control Act, otherwise known as the Glenn Amendment. Clinton administration kept India under pressure by influencing World Bank

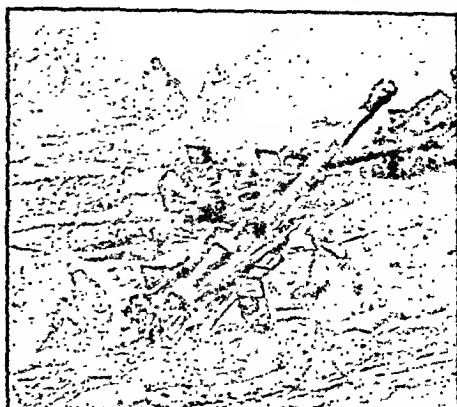
nd IMF. However, gradually the Washington is extending waivers on sanctions as it continued to arm US commercial interest. The Glenn Amendment imposed upon India expired on October 21, 1999, and recently Clinton gained some executive flexibility towards it. A report by the US International Trade Commission (UITC) says that the economic sanction had a relatively minimal overall impact on India's economy..... They, however, had an adverse effect on Pakistan's economy. In real terms, India's economy has performed better under economic sanctions imposed after Pokhran II than in previous 18 months.

Besides economic sanctions, sanctions pertaining to technology control and denial of technology is yet to be lifted. Recently the Washington removed 51 of the 204 Indian private and state enterprises from its Entity List. Gary L. Ackerman, New York Democrat and Co-chairman of the Congressional Indian Caucus, urged Clinton to "re-examine the Entity List and not only cut the number of entities in the list but also review and refine the scope of products in the export curbs". As long as India is under stringent technology sanctions, the Entity List will remain only a pressure upon India's industry.

**Kargil factor :** The Washington's "special relationship" with Pakistan since the end of the Cold War, has deteriorated after 6-week Kargil War. Clinton hinted 'personal interest' to solve the war, but India turned down the US mediation. It is Clinton who took the initiative to draw up G-8 statement to withdraw Pakistani backed mercenaries from the Kargil Sector unconditionally.

The Truman administration's assertion was that only India could prevent China from emerging as the dominant force in South-East Asia. However, after hostilities in Korea, Washington turned towards Pakistan. But the US alliance with Pakistan was "a monumental strategic blunder.... It drained US resources.... bound the US to the fate of one of the Third World's most troubled and least stable nations," says R.J. Mc Mohan.

America is giving importance to India after



the fall of Russia, rise of powerful and assertive China - not so friendly towards India, erosion of Japan's robust economy, challenges towards US world wide, and emergence of unparallel powers in Asia. Ultimately Washington gave tacit support to India during Kargil War. After the Kargil War, the National Security Advisor Brajesh Mishra calls the 'paradigm shift' in Washington's attitude towards South Asia.

**Washington's South Asia Policy :** Clinton administration felt for long time that South Asia deserved more attention. After the Pokhran II and Chagai N tests, Kashmir problem worries the US policy makers about peace in South Asia. Now Washington's goal is three fold: (i) Preventing nuclear and missile competition in the region, (ii) strengthening global NPT regime, and (iii) promoting Indo-Pak relations.

Washington is emphasising on five practical steps that prevent destabilising nuclear and missile competition, reduce tension on the sub-continent and promoting non-proliferation goals. Now they are as follows: (i) signing of CTBT by India and Pakistan, (ii) to halt all sort of production of fissile material, (iii) strategic restraint relating to the deployment and development of missiles and aircraft capable of carrying weapons of mass destruction, (iv) tightened export controls on sensitive materials and technologies that could be used in the development of weapons of mass



destruction, and (v) to resolve the long standing tensions and disputes between India and Pakistan

The US is always maintaining different policies for China, Pakistan and India. It has a South Asia Policy but not an Indian policy. The nine round Talbot-Singh bilateral dialogue was broken down because US imposed four demands upon India. They are (i) capping the Agni programme, (ii) moratorium of fissile material production, (iii) western model technology controls, (iv) and signing the CTBT. The US is discussing all these issues with India in parallel with Pakistan.

**The CTBT:** Now the US pressure is mounting on India to sign the controversial Comprehensive Test Ban Treaty (CTBT). Prime Minister Vajpayee at the United Nations in September 1998 indicated signing of CTBT within a year.

Of the five nuclear states (the US, China, Russia, France and UK) the US, China and Russia have not ratified CTBT. Another thing is that, CTBT permitted three varieties of tests such as sub-critical, hydro-nuclear and computer simulated. Some experts fear that India will be under pressure if it signs not to conduct any of these tests under the NPT. Because NPT only permitted the Big Five to conduct tests.

Experts suggest that India should not sign CTBT until it is assured of conducting subcritical and other tests, parity with China on missile and nuclear technology, lifting of sanctions on high technology imports, and gets a permanent seat in the UN Security Council.

**Conclusion:** For the first time, since independence, western countries and the US profusely backed India's stand on the Kargil issue. And now India is moulding a US-friendly policy. It is the External Affairs Minister Jaswant Singh who is giving a new boost to it by making a fundamental shift in India's policy. With a booming economy and dominating global information, the US wants 'cooperation from India without bothering much reciprocity from India. Washington wants New Delhi's support to achieve following ambitions in 21st century. They are containment of China, strengthening of NPT regime, to build OSCE-type regional security structures under US leadership to deal with 'rogue' states and other sources of 'instability'.

During the recent hijacking of Indian Airlines Plane in which the involvement of Pakistan was established beyond doubt, U.S. once again demonstrated its old policy of keeping Pakistan as a reliable ally in any future realignment of forces in South Asia which has been a long term policy of U.S. in this region. Beyond making general condemnatory statements in the hijacking issue it did not exert enough pressure on Pakistan for an early solution of the hijacking crisis. It could have wielded its influence on Pakistan to diffuse the crisis in a way favourable to India, but it did not want to alienate Pakistan which is still seen by US as the only reliable bulwark against Islamic fundamentalism, despite Kargil.

*\*The author is a counsellor & faculty of Political Science in D.E.C. ■*

## CHOGM Summit at Durban Hard talk against Pakistan

The Commonwealth Heads of Government Meet (CHOGM) summit at Durban's International Convention Centre from November 13 to 15 concluded with strong measures to restore democracy and to fight against terrorism. The CHOGM summit

convening for the first time in the post-apartheid South Africa took a major decision to suspend Pakistan indefinitely. On the other hand, the Commonwealth leaders were unable to agree on the rules to be followed in ushering in 'globalisation'.

Indian diplomacy got a much-needed fillip at the summit, just after a major diplomatic victory at Kargil War. The voice of India was quite prominent for suspension of Pakistan and for the draft of CHOGM's final communique. Indian delegation was led by the Prime Minister A.B. Vajpayee.

**CHOGM on Democracy :** The Commonwealth Ministerial Action Group (CMAG) led by the Canadian foreign minister Lloyd Axworthy that visited Pakistan, after the military coup, returned without a promise to restore democracy within a stipulated time period. (The enforcement of "commonwealth political values" and their violation by Pakistan led to the establishment of the CMAG.)

The CHOGM summit declares democracy as a way of life. However, the value of democracy cited in the final draft turned the commonwealth into a full time vigilance organisation. Keeping in view the military coup in Islamabad, the Commonwealth suspended Pakistan from the Commonwealth Council of Ministers (CCOM) indefinitely. India is not satisfied with this decision. Vajpayee wanted the Commonwealth should stick to the parameters of the Millbrook Action Programme to decide fate of democracy in Pakistan.

India's intention was to take a tough stand against military regime in Pakistan. India is very much critical of the soft stand taken by the Clinton administration and does not want Canada and Britain to join hands with America.

One of the major reasons for the CMAG's soft stand on the coup in Islamabad was the public support for it. After the election of new Commonwealth Secretary General, Don McKinnon (of New Zealand) remarked that the issue now was how the organisation can best act through the CMAG to bring Pakistan back to democracy.

Suspension of Pakistan from the CCOM is a strong indication not only to Pakistan but also to the Clinton administration that the safeguard of democracy in world-wide is vital for all Commonwealth members.

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The CHOGM called for the immediate release of deposed prime minister Nawaz Sharif from military detention and maintenance of 'rule of law'. It resolved that the CMAG "should be prepared to recommend further measures to be taken by the Commonwealth if progress to democracy was not made speedily."

The CHOGM's final communique called for "increased international cooperation to support democracies in achieving benefits for the poor."

**On Terrorism :** The CHOGM summit concluded with a demand that the UN Security Council should take strong measures against the states that harbour and train terrorists. India played a very constructive role to draw up this conclusion. Speaking at the closing executive session of the summit Vajpayee said terrorism continued the "most serious" threat to democracy worldwide. Suppression of democracy is the most crucial factor to plague democracy, tolerance and secularism.

Earlier the Edinburgh Communique (para 24) strongly condemned the acts of terrorism "in all its forms and manifestations, which destabilise the political, economic and social order of sovereign state".

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agree on the rules to be followed for 'globalisation'. It only released a please-all declaration by calling the Fancourt Commonwealth Declaration as people Centred Development.

The Commonwealth Business Forum (CBF) which met in Johannesburg before CHOGM meet gave the recommendations relating to trade between developed and developing countries. It recommended that the Commonwealth should ensure what the WTO maintains its focus on trade issues and "social and environmental policy issues".

The 54-member Commonwealth endorsed India's stand and opposed the United States and the European Union move to link social and environmental clause to trade. No doubt, this is a major diplomatic victory for India.

The CHOGM summit adopted the Fancourt Commonwealth declaration by upholding labour standards and protecting the environment. This should be implemented in an appropriate way by not hampering the free trade and causing injustice to developing countries. The declaration wanted the WTO (134 member countries) meeting at Seattle to aim at achieving better market opportunities in agriculture, industrial products and services in a way that can provide benefits to all members particularly the developing countries.

**Pak Tangle :** The decision to suspend Pakistan indefinitely from the CCO' did not take a safe passage in the summit. There was a clear divide between developed countries like Britain and Canada which wanted a softer approach towards Pakistan, and the hard line groups represented by India, Bangladesh and the majority of African and Caribbean countries.

Now Britain had her level best to suspend Pakistan from the Commonwealth. This did not happen. However, the action taken by the Commonwealth had no impact on making any new decision on the part of military ruler to back to democracy. After NATO action in Kosovo, international world organisation in internal matter of South Asian country looks dangerous.

Pakistan accused India of giving 'vile twists' to the decisions taken at the CHOGM summit. South Africa and Nigeria, which were once punished by the Commonwealth for their internal policies, also played a major role with India in getting Pakistan suspended from the organisation.

Side by side, the CHOGM criticised the UN for its inability to be a fair arbiter of democracy in Kosovo and presently in Pakistan.

**Historical Perspective :** The origin of the Commonwealth can be traced back to the Durban Report of 1839. However, the Imperial Conference first adopted a plan in 1926 to create a Commonwealth of Nations including Great Britain, the Dominions and other territories of the British crown. The long cherished dream of Commonwealth came true in 1947 when the Secretary of State for Dominions was abolished and the Secretary of Commonwealth Relations assumed charge.

Commonwealth is an association closely joined by a common interest having been parts of the old British Empire. The British monarch is the titular head of the Commonwealth. The Commonwealth countries are all Britain's former colonies and dominions. Australia, Canada and New Zealand recognised British Queen as their titular head and accepted Governor Generals appointed by her. However, India elected her president as the head of the state and recognised Queen of Britain as the head of the Commonwealth.

Outside the United Nations Organisations (UNO) the Commonwealth is the only international organisation to form a tiny world community comprising of developed and developing countries across the globe. The Commonwealth member countries belong to other international bodies. To develop a world consensus and international relations the Commonwealth acts as a vital link and provides other forms of cooperation.

The Commonwealth has no written constitution but have broad ideas for the maintenance of common interest. The most important principle of the Commonwealth is that it does not discuss bilateral

disputes among its member countries.

The Commonwealth Secretariat, headquartered at Marlborough House, London; provides assistance for joint consultation and cooperation in different fields. It gives information on matters meeting and conferences, coordinates activities and provides technical assistance.

Now the Commonwealth Heads of Government Meet (CHOGM) has acquired international reputation. India hosted the 25th Commonwealth summit in New Delhi in 1983, with the then Prime Minister Indira Gandhi presiding over it.

**Fancourt Declaration :** It called for 'urgent action' on solving the unsustainable debt burden of the developing countries, particularly the

**Millbrook Action Programme :** It gives a six month dead line and decides the prescription to be followed in cases where democracy has been subverted.

- **CBC :** Commonwealth Business Council. It came into being during the last summit at Edinburgh.
- **CHOGM:** Commonwealth Heads of Government Meet
- **CMAG:** Commonwealth Ministerial Action Group
- **CFTC :** Commonwealth Fund for Technical Cooperation
- **CCOM:** Commonwealth Council of Ministers
- **CBF :** Commonwealth Business Forum.

poorest, building on the recent initiatives agreed internationally. It also called for fighting against terrorism of all kinds.

## Pakistan coup

### An insight into its various manifestations

The military coup, which overthrew the elected government of Nawaz Sharif and made the chief of the army staff, Gen. Musharraf, the defacto ruler of the country, was though sudden was nothing new for the Pakistan's volatile political history. It has been ruled by unelected governments for a sizeable 25 years out of its total 52 years of existence and this was the sixth coup in Pakistan's history, where military has always strived after political power and sought to undermine the civilian authorities time and again. However, this coup came after a gap of eleven years. The last coup was in 1998 when Ghulam Ishaq Khan took over as president following the news of General Zia's death in a plane crash.

**The process :** There is no doubt that Pakistan has been plunged into one of its most serious political crisis in its chequered history. Shortly after the announcement of Gen. Musharraf's dismissal in the morning of Oct 12, the coup processes kickstarted. Gen. Musharraf who was on Colombo returned and was given a ceremonial welcome by the army at the Karachi airport. Thereafter, the Pak troops began to take positions

around Sharif's residence and put him under house arrest. His is presently being held in military



detention. Commandos sealed the walls of the PTV and took control of the state run Pakistan television channel in no time at all. PTV transmissions were discontinued. They also took control over the main airports and took over the houses of several ministers. Furthermore, they took positions around all major government buildings and also other key installations in important cities. Later, in the evening of the same day, the state run television channel resumed its services and announced that Gen. Musharraf was to address the nation shortly. It also stated that the Nawaz Sharif government was deposed.

The General Musharraf announced in the PTV that "I wish to inform you that the armed forces have moved in as a last resort to prevent any further destabilisation. I have done so with all sincerely loyalty and selfless devotion to the country with the armed forces firmly behind me."

The public support: However, what was significant that public, by and large, reacted positively to the forcible suppression of democracy. People in the streets of Lahore were seen rejoicing Sharif government's removal from the office, which may reflect the appealing lack of goodwill among the public for the deposed government. There is nothing in the fact that he had lost the confidence of the Pakistan public - by and large, though his unceremonious removal by brute force could be in no way be justified by the objectively minded people. However, the significant element of public mourning over the overthrow of the Nawaz Sharif government could be a result of the almost black record of political democracy in Pakistan during the last decade. The political behaviour of Nawaz Sharif government was characterized by rampant nepotism and corruption which is probably fuelled the people of a bankrupt country where economic and political conditions are supposed to be the worst in the world. The phenomenon of corruption has been rampant in Pakistan since the independence. The political leaders of Pakistan people have been corrupt since the day of the

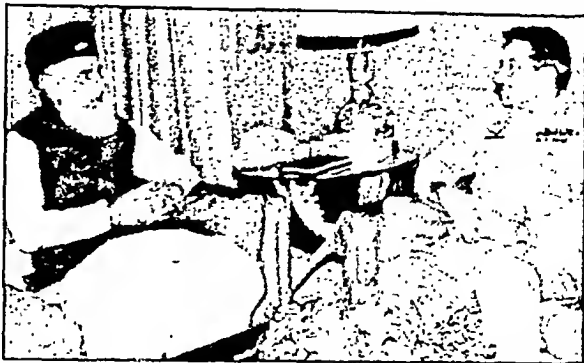
independence of Benazir Bhutto (1988-90, 93-94) and Nawaz Sharif (1990-93, 96-99).

Why did the coup take place: The animosity between Nawaz Sharif and the army chief Pervez Musharraf probably started in the wake of the Kargil misadventure, which forced Pakistan to eat humble pie. The military was antagonized when Sharif ran to the U.S.A. and sought its help. Besides that, Sharif's bowing down to the U.S.A. urging to pull out the troops from Kargil and its vicinity areas also probably lowered the morale of its jagatistic, bellicose and highly "political" army. To top it all, the humiliating setback that the Pakistani military suffered before the Indian forces, further augmented the resentment brewing among the Pakistani army top brass against their Prime Minister. Moreover, Sharif, in a remarkable show of audacity, tried to pass the blame solely to the army for their misadventure and made Musharraf take over for the debacle. This attempt to let the "all powerful" institution of army (in Pakistan with contempt) made Nawaz Sharif's position extremely vulnerable. The deposed Prime Minister who is now faced with serious multiple charges which also include attempted murder and kidnapping, projected himself as innocent about the incident and chiefly tried to absolve himself of the responsibility for this ghastly political blunder on the part of Pakistan. However, besides Kargil debacle, the prevailing public anger against the unabated misgovernment and corruption of the Nawaz Sharif government provided the crutch with the necessary political backdrop. Or in other words, military of Pakistan was emboldened when after gauging the public mood against Nawaz Sharif government. It made the military establishment sure of its success in the plan gambit. Army played the role of the saviour of Pakistan in the end by carefully camouflaging ulterior motive of gaining access to ultimate political power. The last nail in the coffin of Nawaz Sharif was his highhanded decision to sack Musharraf and appoint Zia-ul-Haq in his place, the chief of the army staff, which finally played

role of a matchstick to the petrol. The General landed at the Karachi airport after returning from Colombo and was given a ceremonial welcome by the army. Eventually coup occurred and Sharif was de throne d.

**Vendatta :** Recently, former Prime Minister Nawaz Sharif, barely within one month of his dismissal from office, has been charged on various grounds along with four others. They have been charged with attempted murder, criminal conspiracy and hijacking. The four others are deposed Prime Minister's advisor on Sindh Affairs Ghous Ali Shah, former PIA chairman, Shahid Khakan Abbasi, former director general of civil aviation, Aminullah Chaudhury and the former police chief of Sindh, Rana Maqbool. Some of these charges against them carry death penalty under Pakistani law and they would be tried in the Anti-Terrorist Court (set up by Nawaz Sharif himself) so as to ensure speedy justice. One of the major charges against them is that they have attempted to prevent the PIA flight (PK 805) to land on Karachi on Oct. 12. The plane was carrying Gen. Musharraf, who was returning from a visit to Colombo and 200 other passengers and according to the field complaint, "the aircraft was running out of fuel and only seven minute flying time fuel was left". The plane eventually landed safely when the army took over the airport with the display of sheer force.

One cannot rule out the sinister motive of political vendetta by Musharraf behind this case. Probably a flimsy charge has been concocted against Sharif to make him to go the gallows. This ominous predicament of the Nawaz Sharif has a striking similarity with that of Zulfikar Ali Bhutto, who after being overthrown by General Zia ul Haq in 1979 was hanged. He was charged of conspiracy, which had led to the killing of the father of politician in his tenure, which many political commentators and analysts felt was highly



contrived. May be, history is in the process of repeating itself.

**International reaction :** The international reaction to this military coup was naturally spear-headed by the U.S.A. It has been expected, since in the post World War II era U.S.A. has been extremely proactive in its self imposed role of global police. U.S. reaction was obviously against the blatant suppression of democracy, which was in keeping with its projected image as the champions of democracy, the world over. It couldn't have afforded to support a coup without its image not being tarnished. It showed concern about the future of democracy in Pakistan but despite knowing fully well Musharraf's friendly relations with the several Islamist fundamentalistic groups it was not forthright in isolating Pakistan. It is more so because the U.S.A. has little to fear Pakistan and doesn't treat Pakistan as of being its enemy. It is probably only concerned about the fluctuations in its business interests if any, as a result of change of guard in Pakistan. However, according to the news reports of esteemed news weekly the U.S. administration is privately threatening Pakistan with global economic isolation, despite not terming it as a military coup.

Recently, the heads of government of the Commonwealth nations suspended Pakistan indefinitely from the council of the Commonwealth which is a 54 member organisation, in response to the coup. They resorted to this decision in the ongoing CHOGM (Commonwealth Head of



Governments Meet) at Durban. Now, Pakistan wouldn't be able to take part in the activities of the Commonwealth or attend any CHOGM proceedings (unless its suspension is withdrawn). However, its membership hasn't been suspended. The Commonwealth heads of the government have also called for the "immediate release" of Nawaz Sharif from military detention. This stand of the Commonwealth countries has given the necessary fillip to the democratic process.

**The effect on India :** The success of the military coup in Pakistan would certainly make India more circumspect in its dealing with its not so friendly neighbour, specially so in the aftermath of the Kargil conflict. It has learnt the lesson the hard way that it cannot trust a Pakistani government, howsoever democratic in principles it professes to be. India can trust "still less" a military regime in Pakistan with a trigger happy Musharraf (called "The Butcher of Kargil") being at the helm of affairs. There is no denying the fact that India should always be on its guard and analyse the development in Pakistan with close introspection. There is just no room for complacency and the ruling BJP government shouldn't indulge in any. Moreover, it should be kept in mind

that the coup primarily took place because Sharif's handling of the Kargil episode which resulted in the loss of face for the Pakistan's army. Therefore it wouldn't be unnatural for the new military regime with Musharraf as its chief executive to take a more antagonistic stand against India. Though according to many experts like former foreign secretary J.N. Dixit, "in terms of the nuclear bomb, things are as uncertain as they were before - not more or less" but common sense and long, bitter experience about Pakistan's jingoist army says that it is now more inclined to start full scale warfare, irrespective of consequences with India, on any pretext, now that it is no longer bridled even by flimsy democratic pretensions. Even if they do not dare to press the nuclear button, under this changing political scenario, I shouldn't even think of signing the CTBT, which may jeopardise its defence interests. To substantiate this argument the reaction of Musharraf to the recent hijacking episode is a crucial point. In nutshell, it is no time to resume friendship with our arch enemy Pakistan, on the lines of the highly unpragmatic Gujaral doctrine. Instead it is the time for India to be on its guard, more vigilantly than ever before.

## Jammu and Kashmir

### A retrospective view

■ Aravinda Pradhan ■

According to the Article 1 of the Constitution of India, the State of Jammu and Kashmir (J&K) is an integral part of Indian territory. However, it has a special status both in regard to its internal constitution and its relations with the centre. This is due to peculiar circumstances created by Pakistani aggression in 1947 and the abnormal situation continued thereafter by refusal of Pakistan to vacate the illegal occupation of Indian territory.

The accession of J&K to India was based upon the formal request of Maharaja Hari Singh

This accession was not based in accordance with the procedure laid down in Indian Independence Act, 1947, but in full conformity with the principle of democracy approved by its people. When Governor-General of India accepted the request for accession, the J&K became legally an integral part of India.

**Origin of Article 370 :** Article 370 is a vital source that binds the state with India. Article 370 is a temporary provision of the Indian Constitution and it grants special status to J&K.

Article was introduced as a mechanism to declare the state as an integral part of India, without allowing Abdullah and his followers to exercise plebiscite for a complete merge with India. The irony is that, so far, this article has not been implemented by issuing Presidential Order due to differences arising out of agreement.

The Article 370 is the only legal provision through which the Government of India (G.O.I) establishes its territorial link with J&K. By Article 370, India has allowed a Constituent Assembly for the State. In consultation with the Assembly the nature and extent of centre's jurisdiction in J&K could be determined. From the above facts, it is clear that Article 370 is an article of faith.

At this crucial juncture revoke or scrap of Article 370 would be impossible. The revocation of Article 370 might create disaster after a long spell of turbulence and turmoil. And to scrap Article 370 would mean reverting Accession of October, 1947 signed by Maharaja Hari Singh.

**Autonomy of J&K :** In comparison to other states, J&K enjoys some autonomous status. They are as follows:

- Parliament can't make any law without the consent of the State legislature regarding alteration of the name or territories of the State, international treaty or agreement affecting the state.
- No proclamation of Emergency under Article 352 can be made by the President of India without concurrence of the State government.
- The Government of India can not take any decision affecting disposition of the State without the consent of the State government.
- The Government of India cannot suspend the Constitution of the State on the ground of 'failure'. By the Amendment Order of 1964, Articles 356-357 extended to J&K. However, 'failure' would mean failure of the constitutional machinery set up by the Constitution of J&K but not by the Constitution of India. Two types of proclamations are made in J&K. They are: (i) the 'Governor's Rule' under the Constitution



*J&K Chief Minister Farooq Abdullah with Union Home Minister L.K. Advani*

of J&K and, (ii) the 'President's Rule' under Article 356.

- The Union shall have no power to proclaim a Financial Emergency under Article 360 in J&K.
- J&K has its own constitution made by separate Constituent Assembly. It was promulgated in 1957.
- In case of J&K, the legislation of residuary powers belongs to the legislature of the state except certain matters. Whereas in other States residuary power of legislation belongs to the Parliament.
- With respect to preventive detention, the power vests with State Assembly instead of the Parliament. It is clear that no law of preventive detention made by Parliament will extend to J&K.

By the Constitution Order 129 of 1966, Article 249 has been extended to J&K keeping in view the national interest. This was possible after the Council of States of J&K passed the said resolution.

**Amendment of State Constitution :** The provision under Article 368 pertaining to amendment of the Constitution is not applicable to J&K. The Constitution of J&K may be amended by act of J&K Legislative Assembly passed by a

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majority in case, if such amendment seeks to affect the Governor or the Election Commission (EC), it needs consideration of the President and his assent.

The amendment of the Constitution of India can not be extended to J&K unless it is extended by an order of the President under Article 370(1).

**J&K Autonomy Report :** The State Autonomy Committee (SAC) was set up in 1996 by the National Conference (NC) government. The report of SAC was released in April, 1999. The SAC report outlines a series of constitutional and legislative measures to restore the political autonomy granted to J&K at the time of accession.

Following are given the recommendations of the SAC:

- (i) the word 'temporary' should be deleted from the title of Part XXI of the Constitution and from the heading of the Article 370. It is to be replaced by the word 'special'.
- (ii) Fundamental Rights of Indian Constitution should not apply to the residents of J&K. The State Constitution should include a chapter on it. (The J&K Constitution currently contains a chapter on Directive Principles of State Policy but not on Fundamental Rights.)
- (iii) The Supreme Court's jurisdiction over J&K identical to all other States of Indian Union should be withdrawn.
- (iv) Elections to the State legislature should be held under Article 324 in the manner envisaged by the orders of 1950 and 1954. This means that State laws would apply to conduct elections in J&K but not the laws of EC of India.
- (v) According to the terms of the Instrument of Accession, the Parliament's power in respect of J&K should be restricted to Defence, External Affairs, Communications and some Ancillary subjects. Additional subjects which were added after 1950 should be removed from the hands of the Parliament.
- (vi) The removal of a sitting judge of the State High Court for proven misconduct or incapacity would take place in the proceedings in each



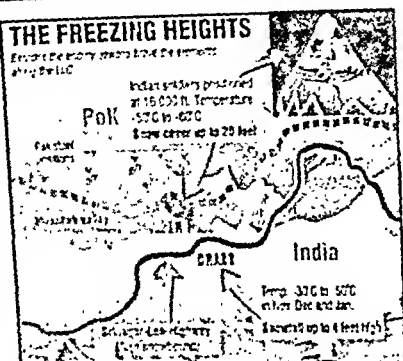
House of the State Legislature, not in Parliament.

- (vii) IAS and IPS should no longer serve in J&K
- (viii) The powers of the centre to govern Scheduled Areas and the welfare of the SC/STs should revert to the State government
- (ix) The State should be restored its lost powers to make changes in her constitution in matters relating to the appointment, powers and privileges of the Governor
- (x) The nomenclature of the head of the State and the mode of appointment of the head of the State which were amended in 1965, should be restored

The recommendations of the SAC are quite impossible to accept on the part of Government of India. The origins of recommendations are based upon the promise made by National Conference in its election manifesto. So far the Government of India have lost many things in terms of men and material. On the other hand the NC is not only the sole deciding factor for the fate of whole J&K.

**The RAC Report :** The Regional Autonomy Committee (RAC) released its Report on April 1999. It was set up by the NC government in 1996. The RAC report fears that NC is in a mood to restructure the state on communal lines.

The RAC recommended the creation of eight new provinces each with an elected provincial



council. In Kashmir there would be three new provinces, the mountain region of Ladakh would be broken up into two new provinces and Jammu region into three provinces. The sole aim of creation of new provinces is to divide the state between Hindu and Muslim communities.

Side by side the paragraph 35.1 recommends that the government may consider setting up of District Councils as an alternative to Regional/Provincial Councils. The most notable feature of this report is that, nowhere it is mentioned why development could not be possible within the present district and province boundaries. The RAC only asked for recommendations that would promote better involvement of people in different regions for the betterment of local organs.

**Solution of J&K Problem :** Is Kashmir problem amenable to a peaceful solution? Former Pakistan Prime Minister Benazir Bhutto on The New York Times, June 8, 1999, suggested to resolve the Kashmir problem on the line 'Jordan-Jordan Settlement by "Camp David Peace Accords"'. She also suggested to develop some confidence building mechanisms between India and Pakistan within a stipulated time period.

To have a permanent solution to the age old Kashmir problem it needs mutual trust and cooperation. Without a truce of war between the two countries. This can be possible by a change in India-Pakistan mindset, involvement of the people of Kashmir for determination of their fate

in peace talks. Beginning of an intra-Kashmir dialogue ignoring the ethnic and political divides is necessary.

**Post Kargil Development :** The much hyped 'Bus Diplomacy' of Vajpayee receives a heavy jolt when Kargil war broke out. Vajpayee did no mistake to inform world leaders about Pakistan's wilful aggression in Kashmir violating international law and bilateral treaties (Simla Agreement, Line of Control, and recently signed Lahore Declaration).

For the first time in Indian history, the Western nations including USA supported India. The United States came forward in formulating the G-8 statement by recognizing the sanctity of LoC. China refused to take side of Pakistan. Saudi Arabia, Iran and Egypt are not happy with Islamabad's backing of Islamist Militia organisation. Side by side, Washington does not want Bin Laden to spread influence beyond Afghanistan in central Asia or in Kashmir.

**Conclusion :** In this present context the solution of Kashmir problem seems bleak. Pakistan is back to military rule. Self proclaimed 'Chief Executive' Gen. Pervez Musharraf hints to restore democracy but nothing has been developed till now. So far, Musharraf has appointed six members to the National Security Council (NSC) and inducted 10 member cabinet. Nawaz Sharif is facing charges of treason, attempted murder and hijacking in an anti-terrorist court in Karachi, side by side Benazir Bhutto declared 'fugitive'.

Musharraf is facing a lot of domestic problems and pressures from world communities. Washington is adopting 'wait and see' approach towards military regime in Pakistan. At this moment, India's much cautious approach towards the development of Kashmir problem is in the hands of time. In the meantime Prime Minister Vajpayee warned defence forces to maintain constant vigil over J&K and said the military of Pakistan had increased the possibility of a war in the region.

# Fifty years of Indian republic

## A case of retrospection and introspection

The Union Cabinet's decision to constitute a national commission under Justice M.N. Venkatchaliah to review the working of the Constitution has simply exemplified the Republic's vulnerability on its 50th anniversary. The golden jubilee year of our Republic provides us with an appropriate occasion to evaluate how successful we have been in protecting the fundamental values and the basic tenets enshrined in the Constitution, which can be construed as a magnificent charter for a peaceful social revolution, prepared by some of the finest minds of our country. We are rightly placed at this momentous point of time for some introspection on our achievements and failures.

The Constitution, the bedrock of the Indian Republic, has braced the toughest of time and survived some of the worst travails and crises. By far, our greatest achievements have been (a) to maintain the unity and integrity of the nation and secular character of the polity and (b) preserve the system of representative parliamentary democracy. We can take legitimate pride in the fact that whatever problems we faced, some temporary aberrations notwithstanding, we have solved or sought to solve them within the existing system.

On economic front, our Republic has seen several paradigm shifts under the new economic policy of liberalisation and globalisation. When the

Republic came into being state wielded most of the powers. Self-reliance, import substitution and centralised plans were the slogans of the day. The public sector held the commanding heights of the economy. However, there has been a complete U-turn set in the past 10 years. Privatisation and liberal FDI and open-market schemes have virtually inundated the Indian market which was never seen before. Yet, amid all this euphoria, the President of the Republic himself made an im-

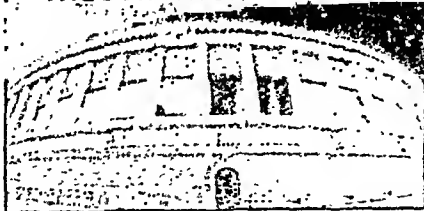
passioned plea; "Our three-way fast lane of liberalisation, privatisation and globalisation must provide a safe pedestrian crossing for the unemployed India also, so that we can move towards equality of status and opportunity". The President's plea for greater state intervention in the neglected task of social engineering should be taken seriously and should not be blurred just for the sake of economic liberalisation. In the background of such fluid

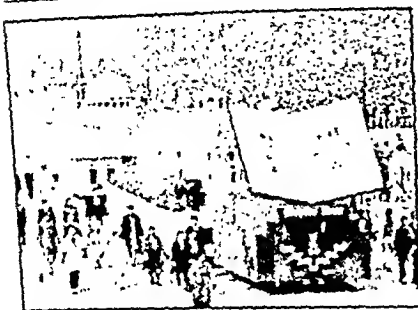
scene on national horizon, the Union Cabinet decided to review the Constitution in the light of experience of last 50 years which would enable it to respond to the changing needs of an efficient, smooth, effective system of governance and socioeconomic developments of modern India within the framework of parliamentary democracy.

For the founding fathers, the constitution was relevant only as an instrument of social change and economic democracy. Pt. Nehru once said - "Our Constitution to be living must be growing, must be adaptable, must be flexible, must be



### भारत का संविधान THE CONSTITUTION OF INDIA





changeable, as society changes, as conditions change. \* The Constitution is a living, dynamic process always growing, evolving, constantly in the making through amendments, judicial interpretation and its actual working. In the past 50 years, the Constitution has been amended 79 times. Every amendment has been an occasion for review. There have been five major "reviews" since 1950. The first review began in 1950, concluded in 1951 and produced the Ninth Schedule. The second was in 1954 by a sub-committee of the Congress Working Committee. But Pt. Nehru did not approve it due to its anti-judiciary sentiments. The third review began with the Golak Nath decision of 1967 and produced the 24th Amendment's declaration that Parliament could amend the constitution by way of addition, variation or repeal, concluded with the apex court's "basic structure doctrine" in Kesavananda Bharati case. The fourth review followed by the 42nd Amendment would have given a distorted shape to the country's democracy. However, it was saved by the 5th major review, the Janata Party government's restorative 43rd and 44th amendments.

Let us begin with the areas where constitutional changes are imperative to solve our problems. In Union-State relations it is first important to look at the entire gamut of Centre-State relations. Indeed, in this context, the report of the Sarkaria Commission has comprehensive recommendations. While issues since the submission of the report need to be taken into consideration while the Sarkaria Commission made sound

recommendations on the role of the Governor and expressed itself in favour of retaining Article 31 but cautioned the government on "using it very sparingly, in extreme cases, as a matter of last resort." Over a hundred declarations of failure of the Constitutional machinery in states may be due to the presence of a potent weapon (Art. 35 in the Constitution), but the misuse of the weapon is due to the indiscretion of the people operating the system. One more problematic area in the Union-State relations is of fiscal federalism—the economic ties among its constituent units, Central States and panchayats and municipalities. Fiscal federalism means more than mere devolution. There is a need to have a clear agenda for cooperative federalism based on optimum fiscal assignments. For local bodies, there has to be proper functions, functionaries and finances.

Electoral reforms are the other major area staring at the polity. Electoral reforms have been a part of the country's political discord for over two decades. Morarji Desai as the P.M. had initiated debate on financing of elections. The thrust by Ramshray Roy and V.A. Panandikar at his instance recommended state funding of elections. Similarly, the Indrajit Gupta Committee recently fully justified State funding of elections, for the recognised national and state parties and the candidates. The Goswami Committee, on Electoral Reforms made several useful suggestions. However, most political parties so far have not favoured electoral reforms in private, whatever the public postures.

The Tenth Schedule dealing with Anti-defection law has failed miserably to prevent defections. This is one part where considerable reform is required. Most political parties have played a significant role in reducing the anti-defection law to insignificance. Apart from that, this law took away from the members their most important privilege of freedom of vote. A second look is a must to amend or scrap completely the Tenth Schedule. Lately the spectacle of several hung parliaments and state legislatures have been making irreparable damage to the concept of stability.

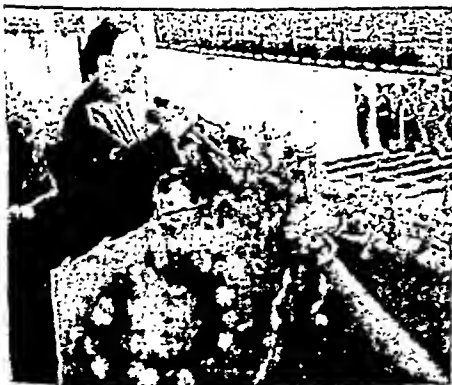
However, any system of democratic government survives on twin principles of accountability and stability. The present talk of a fixed tenure of 5 years for the Lok Sabha is unacceptable and undemocratic. After all, legislatures are only a practical mechanism to carry out the mandate of the real sovereigns in a democracy - the people. Legislators cannot arrogate to themselves the right to continue even after their real masters, the people, have lost confidence in them.

However, in a dynamic society like India the Constitution needs constant amendments. An ideal Constitution shouldn't be an inert document. It is rather a dynamic entity which has been constantly under review. As a charter for democratic self-governance in a nation had been subjected to

colonial rule for two centuries, the Constitution was almost revolutionary in its scope. The irony is that the Republic as it exists today bears only a passing resemblance to that envisioned by the Constitution. Successive generations of politicians have subverted its provisions and in the process reintroduced political feudalism. Anticipating such a situation, Dr. Ambedkar cautioned: "the working of a Constitution does not depend wholly upon the nature of the Constitution. The Constitution can provide only the organs of state such as the legislatures, the executive and the judiciary. The factors on which the working of those organs of state depends are the people and the political parties they will set up as their instruments to carry out their wishes and their politics." ■

## Iran Election

### Reformist wave sweeping through the nation



Iran, which can be termed as one of the bastions of Islamic orthodoxy since the last 21 years, has at last showing signs of change. Iran, which has a population of 62 million, recently experienced a historic election in which a record number 5800 candidates contested for 290 seats of its Parliament. 424 of those contestants were women.

The pro-reform candidates have swept the parliamentary elections, held at Iran on Feb. 18,

which shows chances of translating President Mohammed Khatami's dream of making Iran a liberal Islamic republic into a reality. The result reflects that people in Iran, by and large, have gone tired of religious orthodoxy that suffocated its socio-political atmosphere for more than two decades and they want more of liberal democracy and less of throttling, autocratic theocracy. They have given a decisive verdict for a change and now it is upto their leaders to make changes in their desired direction by making the necessary social and political reforms, so as to propel this stronghold of fundamentalism into a modern nation in a true sense. It is now time for the clerics to go back to Qom and confine themselves to providing moral guidance.

**Historical background :** Iran, which was known as Persia since the ancient times, was ruled by the Shahs from the 16th century to 1906 as an absolute monarchy. On 30th Dec 1906 Constitution was enacted and a national assembly was established. On 31st Oct. 1925 Reza Khan overthrew the Shah of the Qajar dynasty in a coup. He was declared Shah and came to be known as



za Shah Pahlavi.

On 1935, the country's name was changed from Persia to Iran. At the time of the second world war, the allies occupied Iran and Reza Shah Pahlavi was forced to abdicate in favour of his son Muhammad Reza Pahlavi, who became the new Shah in 1941. The regime of the Shah was continued till 1979. The redistribution of land to small farmers and enfranchisement of women, were two notable policies of the Shah's regime which antagonised the hardcore Shia religious leaders. The country also experienced significant economic prosperity during the Shah's regime, however his opposition was also widespread, particularly among the fundamentalist groups. Among them, Ayatollah Ruhollah Khomeini was the most prominent leader. Shah was forced to leave Iran on 17th Jan, 1979 as a result of civil unrest in Tehran, which prompted Ayatollah Khomeini to return from exile and appoint a provisional government on 5th Feb. With the resignation of the Shah's government and dissolving of the Parliament, the path for constitution of an Islamic Republic became smoother. On 1st April 1979, an Islamic Republic was proclaimed in Iran following a national referendum which approved the Constitution of the Islamic Republic. Now, the spiritual leader was given the absolute power. Ayatollah Khomeini assumed supreme authority in the matters of governance.

He became the religious leader of Iran (wali faqih) and he held this position till his death on June 1989. His voice, guided by utmost religious orthodoxy, was the final say in all facets of Iranian politics during his lifetime. Most of his policies were anti-humanitarian and suppressive in nature.

However, in 1997 election, Mohammed Khatami was elected as President who has since tried his utmost to free Iran from the shackles of Islamic fundamentalism. As late as Oct 1992, in the elections to the Assembly of Experts, conservatives bagged 63 out of 86 seats largely because of the clergy based prescreening process where most of candidates (including all women) who could pose some threat to the

conservatives bastion were rejected. This caused resentment among the public about the electoral process which reflected in a low turnout. However, as the result of the recent parliamentary elections suggest, it is very difficult to suppress the winds of change forever and make oppression a perennial philosophy.

**The electoral stance :** In this recently over election, which has been a significant victory for liberalism, the hard liners wanted to prevent Iran from changing with the changing times.

The liberals or the reformists on the other hand have endeavoured to make Iran a more free society, shorn of religious orthodoxy. They want to give more freedom to the press and establish the rule of law. In fact, Khatami who is the main inspiration behind this reformist movement, has also emphasised on the establishment of the rule of law, which would ensure the fact that the government would run by the rules enacted by Parliament rather than by the whims and fancies of the all powerful clergies. The reformists' main electoral strategy was to channelise the growing frustration of the people, particularly the women and the youth, against the rule of the clerics into a decisive verdict for a change. They were successful in this respect.

**The reformist parties :** In Iran, there are presently three main parties who are described as parties with a reformist stance. They all have supported Mohammed Khatami in the presidential election of 1997, which he won. These parties are Majmae Rouhaniyoune Moabarez or the Society of Combatant Clerics, the Jebheye Moshareqate Irane Islami (Islamic Iran Participation Front) and Hizbe Kargozarane Sazandegi Iran or the Executives of the Construction. Among them, the first comprise of religious figures second of Khatami's close associates. Third party, the Executives of the Construction, is led by Rafsanjani. Mohammad Reza Khatami, the younger brother of president Khatami is a prominent figurehead of the Moshareqat party. Among these three parties, the Executives of the Construction have slanted towards fundamentalism,

on the eve of the recent elections. The main force of conservatism Jamae Rouhaniyate Moabarez (Association of the Combatant Clergy) has took Rafsanjani in their folds by luring him to fight for Speakership, as their candidate. Rafsanjani took this offer which could have given a jolt to the reformists' objective. The shift of stance of Rafsanjani could have lowered the credibility of the reformers because many of the Executive's candidates were considered as reformers by the pro-reform voters but thankfully, nothing of such occurred and the electorate gave a wise verdict. In the cities of Isfahan and Tabriz, the reformists won all the five seats and even in conservative strongholds such as Mashad, the reformists bagged four out of five seats. Even in, rural areas, where the conservatives were expected to gain a sizeable number of seats, the reform wave was very much evident.

**The game plan :** The conservatives, probably sensing the mood of the national politics, disqualified several pro reform aspiring candidates from contesting the election. The conservatives have control over the Council of Guardians which has the power to screen candidates. Abdollah Hourri, the reformists' leading contender for Speakership was prevented by the judiciary, to

contest the election. Thus even before the beginning of the electoral battle, the vested interests were at work to sabotage reformists' designs.

The Majlis also lowered the minimum percentage of vote that a candidate requires to win the first round of elections. It has been lowered to 25 per cent from a previous 40, probably because of the disquieting reports of erosion of popularity of the conservatives, among the electorates. The results from the previous elections also gave ample indications of the fact that only about 25 percent of the voters were still committed to the conservatives policy.

**The challenges ahead :** However, it is not a thoroughly smooth sailing for the reformists despite their emphatic triumph in the recently over elections. Still the conservatives have control over the judiciary and the Council of Guardians which can override the laws passed by the parliament, if they view them as contradictory to the Islamic tenets. Council of Guardians has also the authority to screen aspiring candidates before the election. Moreover the Supreme Religious Leader, Syed Ali Khamenei is still the final authority in the present Iranian system of governance who is known for his fundamentalistic views. □

## UNCTAD X

### Failed globalisation for the poor

The tenth session of the United Nations Conference on Trade and Development (UNCTAD-X) held in Bangkok (12.02.2000 to 19.02.2000) proclaimed it as a parliament on globalisation. However, failure of the World Trade Organisation (WTO) in Seattle regarding 'globalisation' cast its shadow on UNCTAD-X. The Indian delegates at the Bangkok conference led by the Union Minister for Industry and Commerce Mr. Murasoli Maran, have categorically opposed overload agenda of the WTO.

The UNCTAD which has been regarded as the strident voice of the developing countries

ushering in cause of free trade- now the nodal body of free trade is the WTO for ushering global order through free trade

It was clearly recognised that liberalisation of trade regimes have brought new changes between rich and poor countries which can be considered as the nucleus of new globalisation to fight against patent imbalances for economic order. The Director General of the International Labour Organisation (ILO) termed the present globalisation as 'fragmented globalisation' as the glorification of 'casino capitalism' and the imposition of the pains of structural adjustment on the



poor countries which can not be ignored in the present market driven global economic order. The UNCTAD-X concluded with a call for a "true partnership" among the countries on both sides of the development which is essential for global peace and security. It also utilised a commitment towards "fair, equitable and rule based multilateral trading system".

**Bangkok Declaration :** The Secretary General of the United Nations Conference on Trade and Development (UNCTAD), Mr. Rubens Ripstein summarised the Bangkok Declaration as "coherence, solidarity and hope". Further Ripstein elaborated that solidarity was so added to give globalisation a sense of interdependence between and among the developed and developing countries. The central theme of coherence is to bring about compatibility between the external economic environment and the domestic policies of each country. India has objected to the western concept of coherence through World Bank, IMF and WTO on the ground that it led to the imposition of "Cross-conditionality" by these organisations on the developing countries. The 'hope' is about the future in relation to trade and development which could improve practical realities and not on "utopian" notions.

The UNCTAD adopted the Bangkok Declaration at the closing plenary session which redefined globalisation as "a powerful and dynamic

force for growth and development". And this growth should be properly managed through as collective perseverance in "the search for consensual solutions through opened and direct dialogue" among the member countries. It gives priority to universality of globalisation. Finally the UNCTAD delegates agreed to the concept of "coherence" among World Bank, IMF and WTO in western style. In the earlier drafts of the Bangkok Declaration, the operative phrase 'coherence' used instead of 'cooperation and coordination'.

**Globalisation :** The main point which ravaged the tenth session of the United Nations Conference on Trade and Development (UNCTAD X) is the issue of globalisation. Again the declaration of plenary session of the Bangkok conference ignored the poor. However, it was a prospective outlook and a developed consensus, in respect of ministerial conference of World Trade Organisation at Seattle.

In the final 'plan of action' of the Bangkok Declaration the participated countries remained too far apart on the fundamental issues of globalisation and trade related developments. There were also some reason lies behind the selection of the venue for UNCTAD X at Bangkok. It was a first hand experience for Supachai Panitchpakdi, who will take over as Director-General of the WTO in just two years to handle multinational organisation to handle the Western countries by breaking the Asian problems.

Secondly Thailand gave much-needed importance to economic liberalisation in policy options. Side by side, most of the countries are giving importance to economic liberalisation and heading towards 'globalisation'. Another cause was that Thailand became an crucial factor to weed out the risks and problems of globalisation when the world economy plunged into crisis in 1997 with the East and South- East Asian crisis.

After the debt crisis of 1980s the world head towards trade liberalisation and, side by side, the twin Bretton Woods Institutions- the World Bank and the International Monetary Fund- had squarely to do justice. After Asian crisis, tackling of international capital flows emerged another problem. UNCTAD generally views the world Bank and IMF as the key agents to solve the crisis, and the changing patterns of policies of international banks need to be emphasised. UNCTAD X turned a major ground to formulate alternative policies for liberalisation which, ultimately, failed its ground to solve the problems for the poor. The internal truth is that world economy is going out of projected levels in a badly manner.

Now the new policy of the World Bank is adopting global economy through a Comprehensive Development Framework (CDF). And the CDF would treat "social and structural issues equally with macroeconomic and financial issues, so that the former one not overshadowed by the latter, as has sometimes been the case in the past."

However, in real terms the CDF is broadly depend upon the political policies which a country is adopting. In actual parlance globalisation is neither irrevocable nor irreversible. But the moot point is that social, economic and monetary policies of the present globalisation need to change. Today it is necessary to formulate policies keeping poverty reduction at the core of the policies

**India's Stance :** India expressed its satisfaction over the draft Plan of Action as it addressed the concern of the developing countries. The Indian delegation led by Commerce Secretary Mr. P.P. Prabhu, was pleased over the issues of liberalisation and development policies. It was a matter of satisfaction that the Bangkok declaration and the Plan of Action were not prepared under the pressure of Western powers. In this ground it may be argued that India and the like-minded developing countries succeeded to great extent.

India welcomed to discuss the "pitfalls globalisation" and the prescription of the developed countries keeping in view the interests of developing countries. Food security was major factor for India to agricultural issues. Though Bangkok declaration and the Planed of Action are not the major decisive factors to determine the future course of globalisation, yet it was a rewarding document. According to India, it could not be a diplomatic factor for third world economies in future trade related negotiations ■

## Israeli-Syrian Talks Catch 22 situation for Barak

The long-standing dispute between Israel and Syria regarding Golan Heights moved in the direction of a peaceful solution recently. Both Israeli Prime Minister Ehud Barak and Syrian Foreign Minister Farouk al Sharaa met on January 4, 2000, at West Virginia resort in Washington, to chalk out a viable solution to the long standing dispute which started in 1967.

**Background :** Israel occupied Golan

Heights from Syria in the 1967 Mideast war. After defeating Syria in another war in October 1973 Israel began to establish settlements in the Golan Heights and to legalise Israeli presence in occupied areas. By doing this, Israel violated the United Nations Charter. Even the United Nations Security Council Resolution 242 of Nov. 22, 1967 categorically underlined the concept of inadmissibility of acquisition of territory by conquest.



U.S.-Israel strategic cooperation agreement was signed on Nov. 30, 1981. This was done as a shield to defy the U.S.S.R., who was opposing the acquisition of the Golan Heights by Israel. All these helped Israel to establish de facto sovereignty in the Golan Heights. On Dec. 14, 1981, Israeli Prime Minister Begin asserted to the Israeli parliament (Knesset) that the Golan Heights is an integral part of the land of Israel. Israel tried to justify its expansion into the Golan Heights by arguing that "no territory" in 1923 was a part of the Mandated Palestine and was handed over by Britain to France under the League Mandate over Syria. The Israeli Knesset passed a bill on Dec. 14, 1981, which extended Israeli laws, jurisdiction and administration to the Golan Heights. But the Israeli action was debated in the United Nations Security Council. It passed a resolution on December 17, 1982, condemning Israeli action. However, another draft resolution (provision for imposing mandatory sanctions against Israel) was vetoed by U.S.A. on January 20, 1982.

However, after the disintegration of the U.S.S.R., the military balance became largely in favour of Israel. Russia, because of its internal and external compulsions after the disintegration, was in no position to become a major supplier of state-of-the-art weapons to Syria while the US was

still remain an open-handed and lavish supporter to Israel. Syria was, according to American calculations, still a 'terrorist state' and hostile to America's best friend, Israel. All these later developments led to a break down in Israel-Syria relations. The strategic advantage and military might and the US support led Israel to block the peace process, as sometimes demanded by Syria. This phase of turbulence continued till Yitzhak Rabin, the moderate leader became the Prime Minister of Israel.

**The period of Yitzhak Rabin :** The Israeli Prime Minister Yitzhak Rabin was committed to revive Arab peace process and to maintain good relationship with all its neighbours - Egypt, Jordan, Lebanon and Syria. The US Secretary of State Warren Christopher visited Tel Aviv and Damascus in August 1993 to mediate the Israel-Syria peace process. The Israeli Prime Minister Yitzhak Rabin authorised Mr. Christopher on August 3, 1993, to present his (Rabin's) proposal before the Syrian President, Hafez al-Assad that Israel is ready to withdraw from the Golan Heights on the condition that the Syrian President would offer a peace and security package in return.

**The period of Benjamin Netanyahu :** In the 1995 general elections, the conservative Likud Party leader became the Prime Minister of Israel. He adopted a tough posture towards the neighbouring countries. In his interview to a Paris daily *Le Figaro* on January 18, 1997, affirmed his stand by saying that "the Golan Heights must remain in Israel's hands because of their strategic historic and economic importance". He even went to the extent that he is ready to maintain the Golan Heights at the cost of peace with Syria. Expressing his unwillingness to relinquish the resourceful Golan Heights, he said, "Why should we abandon our water resources? We can live without petroleum, but we can't deprive ourselves of water".

However, the Syrian President Hafez al-Assad repeatedly responded to the heightening of tension by reaffirming his adherence to the peace process and accusing Israel of wrecking chances for peace. On November 3, 1996, he stated once

gain, that 'peace remains a strategic option for Syria'. His crafty, calculated regime could know at Syria would receive a sound thrashing if it were to go to war with Israel led by the belligerent Likud government under Netanyahu.

**The period of Ehud Barak and the present situation :** Ehud Barak's Labour Party came to power in Israel in May 18, 1999 elections. With Labour Party coming to power, the Israel-Syria peace process was again revived. The Syrian President Hafez-al-Assad congratulated Ehud Barak after he took charge of the post of Prime Minister and praised him as "a strong and honest man". Ehud Barak appointed an Arab, Nawaf Masalha, as Deputy Foreign Minister to appease the Arab minority in Israel.

Like Yitzhak Rabin, Prime Minister Ehud Barak preferred to make his first major move towards peace with Syria. Even, before sworn in as the Prime Minister, Mr. Barak urged President Hafez al Assad to forge a peace accord with Israel quickly.

The US Secretary of State Madeline Albright visited Middle East in 1st week of September, 1999 to boost the peace process in the region. She discussed the issues of tension between Israeli and Syrian authorities. Both agreed to cooperate with each other to reach at an amicable solution. Both Israel and Syria agreed to meet in Washington on January 4, 2000, to discuss the Golan Height issue. The break through came after a meeting between Madeline Albright and Syrian President Hafez-al-Assad. The American President Bill, Clinton took special initiative in arranging the meeting.

Israeli Prime Minister Ehud Barak and Syrian Foreign Minister Farouk al-Sharaa met each

other in Washington for a seven day talk (January 4-10, 2000) to resolve the dispute. But the effort to resolve the issue failed. No agreement was reached. The US State Department spokesman James Rubin told reporters, "we feel like we have gotten ourselves on the right track, but we still have a long way to go. It is a big deal; it has got big implications, and it is going to take some time." On January 9, 2000, Israeli and Syrian negotiations passed another milestone and agreed to discuss the modalities for the resolution of the dispute.

In the meantime violence erupted in Southern Lebanon, the area which has been acquired by Israel, with active support of Syria. Ehud Barak threatened Syria to suspend bilateral negotiations if it fails to prevent Hezbollah from carrying out violence in South Lebanon. He also denied to accept the precondition for an explicit commitment to withdrawal from the Golan Heights for negotiations.

**Conclusion :** Syrian-Israeli peace talks have been frozen since a second round of talks in US which ended recently with no tangible results. The third round talk scheduled for January 19, was postponed indefinitely resumed later on. Ehud Barak is under pressure to show results from the revived peace process with Syria, and may face a serious crisis of confidence if he does not fulfill his election campaign promises to maintain peace and tranquility in the northern-border adjacent to Syria.

However, it can be safely concluded that the prospects of peace between Israel and Syria is on a higher keel in the present period, especially in comparison to the Benjamin Netanyahu period. There is the possibility that the two parties may arrive at a peaceful solution in near future. □

## The escape of Karmapa An enigma with wide ramifications

The fleeing of Karmapa Lama Ugyen Trinley Dorje from China occupied Tibet and his arrival to India has generated lot of controversy and made

India face quite a few uncomfortable questions. On 5/1/2000, Karmapa escaped from Lhasa along with six other associates (one of them is his sister,

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Ngodup Paizan, who is a nun) and arrived at Dharmasala. Later he was shifted to Norbulinga monastery at Sidhbani. This 14 year old Lama is known as Karmapa Lama's 17<sup>th</sup> incarnation and in terms of hierarchy of Tibetan Buddhism, his rank is third, only behind Dalai Lama and Panchen Lama.

**Indian influence :** Tibet was captured by China in 1950 and from then on followed the ruthless exploitation of the Chinese government and its soldiers on the hapless Tibetans. Among all the oppression, the suppression of religion in Tibet was China's chief machination. Dalai Lama was the first to rebel against this Chinese oppression when he fled to India and was given a refuge by our then government. This started a trend among the lesser known Tibetan religious leaders whose inflow to India has been unabated since then. Except Panchen Lama, almost all important figureheads of Tibetan Buddhism are now living in India. So in this context, Karmapa Lama's visit to India and his wish to stay in India is not astonishing. Moreover, the traditions of Tibetan Buddhism are greatly influenced by the ancient Buddhist teachers of India. The Kagyu sect, of which Karmapa is the head, has been inspired by the one ancient Indian Buddhist teacher named Naropa (1016-1100). He was the teacher at Nalanda university.

There is no denying the fact that Tibet and India have had a long historical relationship, primarily based on the pillars of Buddhism. From this angle also, Karmapa's choice of India as a place for political asylum (though he has not asked for it, yet) or refuge is more pertinent than any other place on the globe, though the exact reason of his coming is still wrapped in mystery.

The 16<sup>th</sup> Karmapa, the immediate predecessor of Ugyen Trinley Dorje- the 17<sup>th</sup> Karmapa, had also fled to India 40 years ago. He came to Sikkim where the famous Rumtek monastery of Kagyu sect is situated. He brought along with, a plethora of treasures which made the monastery very wealthy. Moreover, Rumtek monastery also



have had immense western patronage

This monastery of Tibetan Buddhism is the most famous among the western visitors, interested in the religion and the followers of Tibetan Buddhism in the west. It has a great deal of international focus. The Rumtek monastery, which is the headquarter of the Kagyu sect of Buddhism in India, also houses the 'Black Hat'. The 'Black Hat' is the symbol of final authority in the Kagyu sect and is worn by Karmapa. Every Karmapa must have it with him.

**The selection process :** In Tibetan Buddhism it is being believed that all important religious leaders have reincarnation and through specific indications these reincarnations are unearthed. A senior monk or Rimpoche has the authority to decide about his rebirth. He leaves some indications, before his death, pertaining to his reincarnation. On the basis of these indications or symbols, his reincarnation is being found. The process begins five year after the death of the Rimpoche. This interesting process of selection singular to the modern world, was started by the 1<sup>st</sup> Karmapa and is continuing till now. Karmapas leave a letter in which his reincarnation is being stated. There the identification about the next Karmapa is being given by the previous Karmapa. On the basis of that letter the next Karmapa is being traced.



## Rumtek monastery

This monastery was established by the 9th Karmapa in 1730 A.D. But later on, it caught fire and was decimated. It was reconstructed and is situated near Gangtok. It hogged news regarding the question of selection of the new Karmapa (17th) in 1992. In 1981, the 16th Karmapa expired without leaving any indication about who would be his successor and this was the source of acrimony between the regents regarding the selection of the new Karmapa. Tai Situ Rimpoche and Tsurpu Gyalstab Rimpoche declared Ugyen Trinley Dorje as the 17th incarnation of Karmapa which was also acknowledged by the Chinese government. At this stage Chinese government tried to meddle in the religious affairs of Tibet; a shift from its earlier policy pertaining to religious suppression to shrewdly control the emotions of the Tibetans through a 'puppet'. Probably they found in the young boy the possibility of serving its policy of disguised imperialism, by moulding his impressionable psyche in the favour of China and thereby have a hold over millions of Tibetans through him. But Shamar Rimpoche said that an eleven year old boy born in India, named Trinley Thaye Dorje to be the 17th incarnation of Karmapa. However, Dalai Lama extended recognition to Ugyen Trinley Dorje and he was seated on the religious throne on the Tsurphu monastery in Tibet (the seat of Kagyu sect), on Sept 1992. But the acrimony between Tai Situ Rimpoche and Shamar Rimpoche enhanced and situation took such an ugly turn that the government had to place para military forces on the Rumtek monastery. The leaders of the rival factions were barred entry into the monastery which is still valid today.

The Rumtek controversy which till now has been unresolved has now flared up with the arrival of the 17th incarnation of Karmapa to India. The followers of the Ugyen Trinley Dorje wants him to be transferred to Rumtek which is, as said before, the headquarters of the Kagyu sect of Buddhism in India, whereas, his opponents are against it. This important seat of Tibetan Buddhism is in controversy regarding ambiguity over its 'real' Karmapa.

But the letter written by the 16th Karmapa was lost. Eleven years after his death, in 1992, it was claimed by Tai Situ Rimpoche and Tsurpu Gyalstab Rimpoche that they had found the lost letter. In that, according to them, it was stated that Ugyen Trinley Dorje was his reincarnation. Despite Dalai Lama's and Chinese government's recognition, the debate about who is the real Karmapa is very much there among the monks of the Rumtek monastery.

The reason behind Chinese support to Karmapa : This teenage Lama was being groomed by the Chinese authorities to manipulate the Tibetan masses. It was a clear case of using religion for political ambitions. Karmapa Lama is an important religious figure in Tibet and hence his authority would have considerable influence over the ordinary Tibetans. Through him, China was planning to serve its vested interests on Tibet. The widely regarded 17th incarnation of Karmapa was moulded by Chinese authorities to become 'patriotic' through him. They could propagate the propaganda to the Tibetan masses. The importance of Dalai Lama's authorities have convenient. Dalai Lama too escaped India about 40 years ago.

In nutshell, Beijing is able to create Karmapa government's spokesperson of Dalai Lama over the 1992 onwards, Karmapa Lama as a 'patriotic' religious escape is genuine and if engineered by China for a motive, then Beijing would be in a harassed situation. Besides this, China's attempt to present the western world about this flight of Lama. However, needed then we would have visible motives of China behind.

To give political as

make a careful decision if it gives political asylum to Ugyen Trinley Dorje. If the 'escape' is real then the granting of political asylum would jeopardise the Indo China ties which apparently, were showing signs of improving (though we can't be sure of China). If the escape is only an eyewash and if Lama's arrival to Dharamsala was done with Chinese connivance then also China wouldn't lose this opportunity to mount pressure on India (as our natural consequence of this eyewash theory is that China has a sinister motive to destabilise India) and pretend that it's hurt by India's interference in its internal matters. However, counter point is that if India gives political asylum it could win over the pro Tibet lobby. Definitely, India's stance towards the Tibetan refugees, since the days of Jawaharlal Nehru has had been a patronising one, but now in the changing international scenario, we must give precedence to pragmatism. For the sake of appeasing the pro Tibet lobby and the Tibetan government in exile further, we couldn't afford to give excuse to China to be antagonistic towards us. Therefore, we should refrain from giving political asylum and in the light of the present circumspet political approach of Indian government in this policy issue is welcome.

However, it wouldn't be a wise thing to hand over Kamagata Maru to China either as they would not only tarnish our democratic image for political complicity but would also antagonize

the west, especially the U.S.A. The U.S. of A. has been always eager to prick China on human rights angle and would not lose a chance to hype the Karmapa issue to focus global attention on China's abominable human rights situation with respect to the Tibetan refugees. And if India aids China's cause (apparently, here assuming that the escape is real) then we would not only be in the back books of Tibetan government in exile but also of the U.S.A.

Thus, India, in order to strike a balancing chord in its relations with the U. S. A. and other western powers on the one hand and China on the other, should at present let him stay, and treat him as an unofficial refugee but shouldn't grant him political asylum. It shouldn't also ask the Yamaoka to leave for another country as the latter's feelings has expressed his wish to stay in India and if he is not accepted here, he will probably go to the next most accepted country and that would be the U. S. A. India, therefore, shouldn't let the Yamaoka leave India as he will cause trouble by seeking refuge there. He will cause trouble if he goes to the U. S. A. as the U. S. A. is a free country and he will cause trouble there. The U. S. A. is a free country and he will cause trouble there. The U. S. A. is a free country and he will cause trouble there.

Sri Lanka  
Quest for lasting peace

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to end 'the days of terror' unleashed by the LTTE.

At the same time the United National Party (UNP) denied to join the government, but gave assurance to extend 'out side support' on specific issues to resolve the Civil war.

**The Bombshell :** On December 18 1999 the Sri Lankan President Ms. Chandrika Kumaratunga narrowly escaped an attack on her life by a LTTE suspected woman suicide bomber at the Town Hall premises in Colombo. Around 9.20 pm the blast took place just as the president rounded up her month long campaign. The blast occurred when the president was being interviewed by an Indian television correspondent for the STAR TV. Ms. Kumaratunga became the first political leader to survive a suicide bomb attack. The suicide bomber had almost succeeded in her attempt to blow Kumaratunga to pieces but the brave securitymen dragged that lady to some distance before she could trigger the blast.

Subsequently a blast occurred in Ja-Ela which claimed the life of a former Army Chief of Staff, Maj. Gen (retd) Lucky Alagam. The survival of the president is the third time in the history of Sri Lanka that the president has survived an attack by a LTTE suicide bomber misfired. Earlier two other Sri Lankan army officers and a police officer survived. Chandrika's Mercedes Benz

car saved her life as it was parked between Kumaratunga and the suicide bomber. However, her car driver who served more than thirty years died in the blast.

In November 9, 1994, presidential elections the UNP candidate, Mr. Gamini Disanayake, fell victim to human bomb in Colombo and Kumaratunga won the presidential election in November and the parliamentary elections in August of the same year. The LTTE welcomed it as a 'mandate for peace'. However, in November 27, 1999, in Hero's Day speech the LTTE chief Mr. V. Prabhakaran declared the five year rule of Chandrika as a 'curse on Tamil People' and her tyrannical rule left a 'permanent scar' on the soul of the Tamil nation.

The political pundits in Sri Lanka observe that fall of Jaffna in 1995 is the 'scar'. They, the LTTE, could not forgive Chandrika for taking away their so-called capital, Jaffna. The same LTTE offered a 'unilateral ceasefire' just after the week of Chandrika sworn in as the President in November 1994, and now they tried for her life.

The KARIMA - the cycle of motive and revenge - is the ideology of the LTTE. Former Indian Prime Minister, Rajiv Gandhi, was killed by a LTTE suicide bomber in Sniprambudur in Tamil Nadu for sending Indian Peace Keeping Force (IPKF) to Sri Lanka. The LTTE very skillfully used former president Ranasinghe Premadasa to send the IPKF out of Sri Lanka, and, side by side, acquired a lot of arms and ammunition from Premadasa to fight IPKF. But in turn he had to paid with his life.

In the annual Hero's Day address Mr. Velupillai Prabhakaran declared that the LTTE had liberated all the ancient towns of the Vanni region under the military offensive 'Operation Unceasing Waves III'.

**Background of Conflict :** There has been a traditional hostility between northern Tamils and southern Sinhalese. The Ceylon National Congress formed in 1919, containing both Sinhalese and Ceylon Tamil groups. By then Indian Tamils were brought in as a labour force for the tea estates.

They were treated as a separate community. However, Tamil national feeling was erupted over the issue of the use of Tamil language in schools. In 1956 Solomon Bandaranaike became prime minister of People's United Front advocating neutral foreign policy and the promotion of Sinhalese national culture at home.

After the murder of Bandaranaike in September 1959, his widow Sirimavo Bandaranaike succeeded him giving emphasis to socialist government. Agreements were made with the government of India (GOI) in 1964 and 1974 for the repatriation of Indian nationals.

Mr. Bandaranaike's government fell in July 1977 because of economic failure and repression of non-Sinhalese people. The United National Party (UNP) returned to power and in 1978 a new constitution was adopted with a system of presidential system of government. The United National Party (UNP) leader Junius Jayawardene became the first executive president.

However, the problem of communal unrest remained unsolved and Tamil separatists were became active. In 1983 the Tamil United Liberation Front (TULF) members in the parliament were asked to renounce for a separate Tamil State. At last this demand was refused and the Tamil United Liberation Front (TULF) leaders withdraw from the parliament. After that Militant Tamils started armed action against the government and this ultimately developed into a Civil War.

On January 1989, a state of emergency was ended. But violence continued. A cease-fire was signed on 3rd January 1995. However, fighting breakout again in April of the same year. The Liberation Tigers of the Tamil Eelam (LTTE) stronghold of Jaffna was captured by the government forces in December 1995 and in mid 1997. Despite all these efforts of the government soldiers, they failed to open a safe route to Jaffna from the south of the Island. During the year 1998 the 15 year civil war saw some of the fiercest fighting which has claimed more than 50,000 lives.

Peace Talk : Returning from London on Dec. 30, 1999 to doctor her injured eye- Kumaratunga

showed her eagerness to enter into negotiation with the LTTE chief V. Prabhakaran in a "democratic process" and to accept a solution within a United Sri Lanka.

Prior to 1994, the UNP rule shattered the hopes of the India- Sri Lanka Accord of 1987 by the president J.R. Jayewardene. And the president R. Premadasa patronised the LTTE by giving money and weapons and allowing them to keep control over north and east of Sri Lanka.

Kumaratunga promised to end the executive presidency in favour of parliamentary democracy and to solve the war in Northeast. But the peace proposals of Kumaratunga were injected Prabhakaran and started the Third Eelam War in April 1995. In the Vanni region tigers got major victory, the military gains since 1996 were wiped out overnight by tigers. Situation was so grim that few soldiers revolted against the government and some fled from the field. Prabhakaran wanted the defeat of Kumaratunga. At the same time the UNP leader Wickremasinghe changed the UNP policy to garner Tamil support on ethnic ground and extended an olive branch to Prabhakaran.

Now the situation turned difficult to find out a peace plan taking into consideration the People's Alliance (PA), UNP and LTTE. The LTTE had been in constant touch with the British parliamentarians, the Commonwealth Secretary-General and the Norwegian government. It is sure that the Sri Lanka government will not support for the creation of a separate Eelam. At the same time the LTTE is adopting a policy of "drag on and on" of peace negotiations and put some new demands or conditions before to return to normally.

The endless rift between the government and the opposition UNP is the major cause for the inability to forge a bipartisan consensus to resolve decade long ethnic crisis. But the UNP leader, Mr. Ranil Wickremesinghe, was quite critical about Chandrak administration's repeated effort to resolve the LTTE crisis. In the mean time the LTTE has promised to annihilate of all Tamil and non-Tamil leaders who stand against their effort to create a Tamil homeland.

The top most priority of Kumaratunga should be to solve the ethnic crisis. Instead of breaking with the UNP, the PA has to find out the solution to end the civil war. The top most blunder of Kumaratunga was to hope for peace talks while waging war against the LTTE. And, on the other hand, Kumaratunga was not giving due care to resolve some of the basic problems of the Tamil people, such as rehabilitation and development. The packages delivered by her government were not detrimental to solve age-old ethnic crisis.

It does not mean that there is no way left to solve the crisis. Some of the proposed options are as follows:

- (i) To rejuvenate the defunct North-eastern Provincial Council to initiate developmental work.
- (ii) To respect proposals made by Wickremesinghe.
- (iii) To lift the harsh measures imposed upon Tamil people and to create a living condition for them.
- (iv) And, at last, to stop the overseas support to Tamil people for the LTTE.

## Water

### A raging fire of controversy

Controversy and Deepa Mehta seem to go hand in hand. After *Fire*, she has now courted controversy with *Water*. *Water*, the last of her trilogy of films *Fire*, *Earth* and *Water*, has generated lot of media attention. As soon as she started shooting of *Water* in Varanasi, where the film is being set, in 1920s, the fundamentalist activists staged a violent protest against the film by raiding the locations where the film was being shot and decimating the set of the film. The molly Hindu fundamentalist elements have congregated under the banner of the recently constituted Kashi Sanskrit Raksha Sangharsh Samiti (KSRSS).



They accused her of giving a distorted picture of the lives of widows in Kashi or Varanasi and also of pursuing an agenda to defame Hindu culture. They condemned her of painting a distorted picture of Indian culture for the western markets. The administration remained a convenient spectator to this suppression of creative expression through brute force. Instead it victimised the victims by deciding to halt the shooting of the film on account of the law and order situation.

The shooting of the film was stopped by the district administration following violent demonstration by the orders of the Uttar Pradesh government. Deepa Mehta in turn accused the cultural wing of the RSS responsible for the arson on the sets. The state government referred the film back to the I&B ministry though its script, as per the I was cleared by the ministry before, without a hitch. As Deepa Mehta is a foreign citizen (Canadian), she had to get her script cleared at first the I&B ministry and she did just that and got clearance. Therefore, there was no logic whatever behind again referring it back to the I&B ministry. Deepa Mehta was left with no alternative but to run to Delhi to seek the intervention of the centre so as to get the green signal for continuation of her shooting.

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In the latest development, the I&B ministry cleared the script for *Water* after she agreed to delete five sentences and three scenes from the film. At a meeting between Deepa Mehta and I minister Arun Jaitley, the matter was resolved. Even Prime Minister okayed the revised script. Though according to Arun Jaitley the entire controversy had ended and Deepa Mehta was given permission to film *Water* on Varanasi, but

supporters of VHP were not happy with the decision.

They started clamouring for the removal of all sections in the film which they thought as 'objectionable' before the commencement of shooting. They are of the view that she is pursuing an agenda to defame Hindu culture and presenting a distorted picture of Kashi or Varanasi and India, primarily for the western market. VHP President Ashok Singhal asked Centre to withdraw the permission of shooting as according to him the film showed India's ancient culture in a 'poor light'. He also said that it was the "part of conspiracy by Christians and the west" to degrade Hindu religion.

Shooting of the film which commenced under security for the second time was again disrupted as a Shiv Sainik attempted to commit suicide and there were stone pelting by irate mobs. The U.P. government again disallowed the shooting of *Water*, apparently fearing a law and order

problem, for fourteen days. Despite putting up a brave front, at last the film maker had to abort her shooting plans from Varanasi and left the city. This episode can be construed as a victory of cultural fascism.

Though she may resume her shooting at Madhya Pradesh as the chief minister of MP, Digvijay Singh has assured full protection to Ms Mehta for shooting anywhere in the state, the whole incident was unfortunate for the liberal, pluralistic cultural heritage of India. Ancient Indian society was always tolerant to its criticism and contrary views and that was one of the important criteria for its perennial character. If the RSS, VHP etc had objections to the content of the script of *Water*, they could have protested peacefully or debated over the issue on a national level, or raise public consciousness against it, rather than resorting to this gross intolerant behaviour; which borders on hoodlumism and taints India's cultural heritage, of which they claim to be the custodians. ■

## Population policy 2000

### A paradigm shift in population growth

The Union government on February 15, 2000 gave the nod to the new "National Population Policy 2000" to strengthen sterilisation. The government decided to freeze the number of seats in the Lok Sabha for 25 years from 2001 to 2026 at the current level of 543 members on the basis of 1971 census. The implementation of the policy would need further amendment of the Article 84 of the Constitution. The initiative not only restricted strength of the Lok Sabha at 543, but also the number of representatives in the Lok Sabha from each State and Union Territories would be same.

The policy aimed at bringing fertility rate to 'replacement' levels by 2010, stabilisation of population by the year 2045, continuation of two child norms and adoption of sixteen "promotional and motivational measures" to implement the policy

The "Promotional and motivational" measures in the National Population Policy 2000 are linking of disbursement of cash awards under the Rural Development Department's maternity benefit scheme, antenatal check up, delivery by trained persons, birth registration, BCG immunisation. Other initiatives include insurance provision schemes for the couples who are below the poverty line (BPL) and for those who undergo sterilisation with not more than two living children, special reward for those who marry after legal marriageable age, registration of marriage, acceptance of small family norms and adoption of terminal method after the birth of the second child.

The policy speaks about the 'initiatives' as facilities of safe abortion rewards for Panchayats and Zila Parishads for exemplary small family norms, re-

infant mortality rate, promotion of literacy with compulsory schooling up to the age of 14, provision for creches and children centres in rural and urban areas and women participation through paid employment.

The most notable features of the National Population Policy- 2000 are strict enforcement of the Child Marriage Restriction Act and Pre-Natal Diagnostic Techniques Acts. The Department of Family Welfare is to provide adequate attention and technology upgradation for acceleration of population policy performance in the states. The Department has to go beyond the present below average of socio-demographic indicators.

As per the provisions of the Constitution the number of seats of a state in the Lok Sabha are determined on the basis of population. During mid 1970s the number of seats in the Lok Sabha was dropped at 543. This decision was binding up to the year 2000. However, the present population policy restricts the number at 543 up to the year 2126 in fact. This will hamper the states like Uttar Pradesh and Bihar as these states failed to check population explosion. On the other hand states like Kerala, West Bengal, Tamil Nadu and Andhra Pradesh are given more seats in the Lok Sabha on an increased population ratio. The states which are successful in implementing family planning programmes will be at the receiving of population as less population would mean less number of seats in the Lok Sabha.

**National Commission of Population:** The policy speaks about the formation of the National Commission of Population under the chairmanship of Prime Minister to monitor and implement population policy and to guide planning implementation. The Commission will include, besides Prime Minister, the Chief Ministers of all the States and Union Territories, Central ministers in charge of the Department of Family Welfare, other concerned central ministers and departments, outstanding academicians, NGOs and public health professionals. To ensure inter-sectoral coordination between ministries, the policy envisages setting



up of a coordination cell within the Planning Commission. It also envisages for setting up of state level Commissions on population by the Chief Ministers.

The policy is giving greater emphasis to the people at below poverty line, by which targeted ambition can be achieved. Health care of mother and child, sanitation, compulsory education figured more prominently on the agenda. It aims to achieve the targeted population growth through de-centralised decision making. The National Commission of Population will review the immediate, medium and long-term objectives from time to time.

The policy's immediate objective is to meet the 'unmet' needs for contraception, health care infrastructure, health personnel and integrated service delivery system. The medium term objectives are aimed at bringing total fertility rate to trajectory level, strict implementation of intersectoral strategies, and two children per couple by the year 2010. The long term strategy is stabilisation of population by the year 2045.

**Previous policies:** Population explosion directly affect land, economy and capital of a country. Keeping in view the adverse impacts of population explosion, the government of India has placed emphasis on population policy in various plan proposals. However, a strict and well developed planning was not given due emphasis in the first two five year plans. Though it was implemented subsequently, family planning got a death blow during the time of Emergency (1976-77) for its coercive measures.

## Swaminathan Committee

Stabilisation of population as policy initiative has been a burning topic since mid 1994. The Swaminathan Committee, named after Dr. M.S. Swaminathan Chairman of the committee, on national population submitted its report to the government in May 1994. Within two months the recommendations of the committee were submitted in the Parliament, but it was rejected. During the prime ministership of I.K. Gujral (1997) the Cabinet approved it. However, after that no initiative was taken up for delimitation of constituencies on the line of population policy.

The Swaminathan Committee mooted the idea for multi-pronged 'promotional measures' to accelerate population control measures. A proposal was also taken to debar contesting candidates in elections starting from local bodies to the Parliament, having more than two children. In December 1999, political parties have rejected it. Even a proposal was mooted to distribute ration cards on the basis of two children norm. However, the Swaminathan Committee cancelled its multi-pronged proposals as a result of sharp criticism from NGOs and medical professionals.

The decision to abandon delimitation exercise for another twenty-five years crept up when the Election Commission (EC) made the pleas for immediate completion of the exercise. On the otherhand, experts are of the opinion that delimitation of constituencies could have proved an advantage opportunity for women representatives for greater representation in the Parliament and in State Legislative Assemblies.

Major thrust of population policy in India is to reduce growth rate of population. Otherside of the matter is largely economical, such as rise in per capita income, saving/ capital formation, rise in foodgrain production etc. The government of India (GOI) is putting emphasis to family planning besides the policy of emigration and economic development. At the same time birth control should not be taken as an alternative to economic development. It needs other social welfare measures such as improved health care, wide spread

education, adequate supply of social amenities, better information facilities etc.

For better implementation of Family Planning among the masses it need awareness and education, effective and harmless contraceptive devices and easy availability of trained persons at the doorstep. The government of India (GOI) is giving emphasis, through various policy measures, to 'cafeteria approach', incentives like 'green cards' and inclusion of voluntary organisations.

After the publication of the 1951 census results, need was felt to check population growth through family planning. In 1966 a full-fledged Department of Family Planning was created in the Ministry of Health, Family Planning and Urban Development. To make the Family Planning policies more popular, media campaign was organised and subsequently more funds were allotted for it. A new National Population Policy was announced on April 16 1976 with a lot of modulation from earlier policies. The government abandoned the voluntary approach of the family planning, marriageable age for male was raised to 21 years and 18 for females. Government machineries were largely included for the implementation of the policies.

India was the first in the world to take initiative for a comprehensive Family Planning in 1951. Successful family welfare programmes depend on improved literacy rate, female education, socio-economic status etc. At the same time, India is a signatory to Cairo Conference. The Cairo Conference on Population Development in 1994 gave emphasis for a broad-based approach to population stabilisation and fulfilling the reproductive needs of the people.

The Reproductive and Child Health (RCH) Programme was launched in India in 1997. The RCH draws its mandate from the Programme of Action of the International Conference on Population and Development 1994. A comprehensive package of services like family planning and child health management of reproductive



including STD subsequently were launched under the RCH Programme. Under the scheme of Social Marketing of Contraceptives, condoms and oral pills are presently being sold at subsidised prices (55-58 per cent) through a system of network of distribution.

To prevent illegal abortions, the Medical

Termination of Pregnancy Act, 1971 was promulgated. Under this Act, medical termination of pregnancy can be done in pregnant women up to 20 weeks. Since 1996, any test to determine the sex of an unborn child has become illegal with the implementation of Prenatal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994. ■

## Ulster deal Beginning of a new era

The Irish Republic's constitutional claim over Northern Ireland was scrapped after a new agreement, known as Ulster Deal, signed between Britain and Ireland in Dublin, the Capital of Irish Republic, on December 1, 1999. Irish Prime Minister Bertie Ahern authorised the scrapping of the claim at a Cabinet meeting on November 25, 1999 and after that the Northern Ireland Secretary of the United Kingdom and the Irish Foreign Secretary signed the new agreement. The British Prime Minister, Tony Blair, hailed the agreement as the "hand of History". A string of momentous events began in Dublin when the Government made concession to Unionists by formally scrapping the constitutional claim since 1937.

In Belfast, the capital of Northern Ireland, the first power sharing cabinet in 25 years held its inaugural meeting on December 3, 1999 bringing Unionists and Republicans around the same cabinet table and displaying a new political harmony. Along with the establishment of Government in Northern Ireland, the two other institutions created by the Good Friday Peace Agreement of 1998 have also been put in place: a North South Ministerial Council, which will bring together ministers from Northern Ireland and Ireland to formulate common policies, and a British-Irish Council where leaders of the devolved governments of Northern Ireland, Scotland, Wales and Britain and Ireland would meet. This sweeping change which occurred in November 1999 was backed by 95 percent of Irish Republic's voters in 1998, recognised that

the border which has divided Ireland since 1920 will remain as long as most Northern Irishers wish it. The people of the Republic voted to amend Articles 2 and 3 of the constitution which were claiming Northern Ireland as a part of the Republic. Article 2

now defines "who is entitled to be part of the Irish nation, rather than the extent of the national territory." Article 3 states that "it is the will of the Irish people, in harmony and friendship, to unite all the people who share the territory of the island of Ireland". But the new wording came into effect only once all aspects of good Friday agreement are in place. The new wording makes it clear that a united Ireland will be brought about only by peaceful means and with the consent of a majority of people democratically expressed in both parts of the island.

The Govt. of Ireland Act of 1920 had divided Ireland as whole into separate Northern and Southern sections, each with its own legislature. The new government of Northern Ireland was dominated from the beginning by the Pro-British,



(Protestant) Ulster Unionist Party. But, in 1937, the Irish government led by Eamon de Valera propounded the doctrine of absolutism. His notion was that Ulster was an integral part of Eire which was improperly annexed by Britain. Catholic-led "civil rights" demonstrations against political and social discrimination erupted during 1968. It evoked counter demonstrations by protestant extremists and leading to increasingly serious disorders particularly in Londonderry. In November 1968, the government of Terrence O'Neil proposed a number of reforms that failed to check the disturbances. In March 1972, the British Prime Minister Heath decided to impose direct rule in Northern Ireland as it turned a deaf ear to London's demand to maintain law and order there.

A plebiscite on the future of Northern Ireland was held on March 8, 1973 but Catholic parties boycotted it. When 57.4 percent of the electorate voted for Ulster remaining within the United Kingdom, 0.6 percent voted for union with the Republic of Ireland and remainders abstained from it. Twelve days later the British Government issued a White Paper which included a proposal that a Northern Ireland Assembly of 80 members would be elected as soon as possible for a four-year term. The Assembly was constituted and Brian Faulkner became chief of an executive-designate that included representatives of both Protestant and Catholic factions. In a meeting at Sunningdale, England, in December 1973, it was agreed by the Irish government, British government and executive designate of Northern Ireland to make a tripartite Council to monitor relationship between North and South. As a consequence the direct rule was terminated in January 1974. However, it was failed and again direct rule was imposed in May 1974. In July 1974 the UK parliament passed the Northern Ireland Act, of 1974 which authorised the election of a Constitutional Convention to speak for public sentiments for future government institutions. With the provision that any proposal must include the sharing of

power between the religious communities. The United Unionist Ulster coalition (UVVC) won 45 of 78 Convention seats. It called for link of Northern Ireland with the crown and voted against the participation of Republicans in future. The Convention was reconvened in February 1976, with the hope of reaching agreement with the Social Democratic and Labour Party (SDLP). However, registered no further progress and dissolved a month later.

Anglo-Irish intergovernmental Council (AIRC) was set up in November 1981 to discuss matters of common concern between Britain and Ireland on a periodic basis. Thatcher government in 1982 secured parliamentary approval for the gradual reintroduction of home rule under a scheme called "rolling devolution". The initiative assumed substantive form with election on October 20 for a new 78-member Northern Ireland Assembly in which the Sinn Fein (political wing of Irish Republican Army) participated for the first time. Again, on June 1986, the UK government dissolved the Assembly.

IRA's (Irish Republican Army) bombing in the British mainland town of Warrington on March 1990, in which two young boys were killed, caused widespread resentment in both Britain and Ireland. The renewed impetus in UK-Irish cooperation on Northern Ireland bore fruit with the Downing Street Declaration by John Major and Reynolds. The declaration aimed to bring about a cessation of hostilities in Northern Ireland. IRA made an historic announcement on 31 August 1994, that as from midnight that day "there will be complete cessation of military operations" by all IRA units. It was warmly welcomed by the UK and Irish governments.

On 25th June, 1997, the Irish Prime Minister Bruton and British Prime Minister Tony Blair agreed on a detailed mechanism for arms decommissioning and the need for an IRA ceasefire, which was restored on 20 July, 1997. It cleared the way for Sinn Fein to enter a broad-based peace

talks held in Belfast the following September. With progress made on several issues and the ceasefire continuing to hold, in December Prime Minister Blair announced that the Irish Republic was ready to consider dropping its claim to sovereignty over Northern Ireland. That option appeared to be under intense consideration at the "all-party" talks being held in early 1998. It proved the way for Good Friday Accord.

**Good Friday Accord :** The newly formed legislature and executive of Northern Ireland. In November 1999, became a forward movement in the peace process under the Belfast Agreement of 1998. Under the terms of Agreement, full legislative and executive power are given to the 108 member Northern Ireland Assembly for agriculture, education, economic development, health and social services, environment and finance. However, the British Secretary of State for Northern Ireland retains control over "reserved" matters such as police, security, prisons and criminal justice system. The assembly can, if it wishes, legislate in those areas but only with the approval of the secretary of state and the British Parliament. A number of matters including defence, taxation, appointment of judges and international relations remain under the control of the British government.

The new executive is truly a rainbow coalition. It spans the political spectrum from Sinn Féin to the hardliners of Ian Paisley's Democratic Unionist Party (DUP). The executive is headed by David Trimble, the Ulster Unionist leader, as First Minister and Seamus Mallon, the nationalist SDLP's deputy leader who regains the post of deputy First Minister from which he resigned in a moment of extreme frustration in July 1999. Regarding finance, the Finance Minister will draw up a budget for running Northern Ireland and the British Secretary of State will negotiate a figure with the Treasury over the bid. Once a sum has been agreed, the Northern Ireland executive will decide on the sums to be allocated to each department. For the

next two years, the new executive will operate on the budget agreed under the Government's Comprehensive Spending Review. One of the first tasks for the executive will be to agree a programme of work and a budget to put to the whole Assembly. It will have an overall budget of about £8.3 Billion out of a total budget for Northern Ireland of £ 9.9 billion.

David Trimble, the leader of Ulster Unions of party, secured his Party Council's support by a majority of 57.9 percent on 27 November, 1999 for the so-called Mitchell formula only by one or two significant concessions. He promised the 861 delegates that they could review their decision in February, 2000, by which they would know whether the IRA had begun disarming. He also gave Jasia Cunningham, the party President, the not effect of the Council's vote was to remove disarmament as a precondition of Sinn Féin's entry into executive. It has reintroduced the element of coercion that the republican movement has rejected from the outset of the peace process. The whole thrust of the Mitchell formula was that IRA decommissioning should be seen as a voluntary act made possible by a dramatically improved political climate.

What really matters is that Sinn Féin take up their seats in the new government of Northern Ireland. The circumstances are being created which make excellent sense in terms of the political objections of the republican movement for M. Adams to resolve the decommissioning issue. The danger is that if he is not able to do so, the republican movement will bear the lion's share of the responsibility for precipitating in the functioning the agreement in February, 2000. One new security assessment listed the IRA as possessing at least 1,000 rifles, 500 hand guns, 50 heavy machine guns and 2,000 Kgs of Semtex high explosive, most of it obtained originally from Colonel Gaddafi, the Libyan dictator. Under the Good Friday agreement, all of it must be decommissioned by 22 May, 2000.

# The Line of Control (LoC)

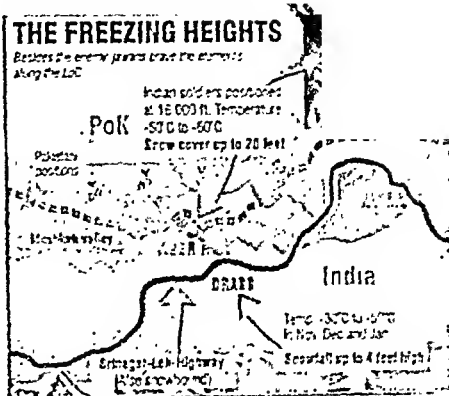
## The line of restraint

The Kargil aggression had inevitably ended the good faith and trust between India and Pakistan which had started looking up since the Lahore Diplomacy. The armed infiltration of the Pakistani rangers into the Indian territory was first noticed on May 6, 1999 and the subsequent clash took place on May 8, 1999.

This was the first major violation of the demarcated border of such a magnitude and nature since 1971. The Pakistani intruders were not a mere small group of militants sneaking into India, through the mountain passes, to merge with a sympathetic local populace of Kashmir. Rather, it was a column of trained, armed soldiers of Pakistan who crossed the Indian border to occupy an area of the Indian territory more than five kilometres deep. By now, it is a fait accompli they had the official sanction and support of Islamabad. The present violation of LoC is a continuation of the transborder terrorism Pakistan had been resorting to vis-a-vis India since the early eighties. Initially, it took the form of active support to Khalistani extremists in Punjab. Then came the massive infiltration into Kashmir from 1989 onwards. Having been frustrated in both these misadventures, Pakistan has now shifted its activity to remote border areas employing regular army men—for whom they accept no responsibility.

On the other hand, unfortunately, since the Lahore Diplomacy and the celebrated Lahore Summit, the Vajpayee Government got swept away by the euphoria of improving ties with the Nawaz Sharif Government. The Indian security forces and intelligence network also failed to maintain a hawk-like vigil on the borders.

Sugar imports from Pakistan with Pakistani exporters clamouring for better train connections across the border, the possibility of sale of electric power and the Lahore ride lulled the Indian Government into addressing all its energies to



improve its relations with Pakistan.

The recently seized maps by the Indian army from the Pakistan army regulars at Tololing shows that the maps -printed in 1984 on the direction of Major General Anis Ali Sayed, Surveyor General of Pakistan shows the LoC exactly where India claims it is

**What is LoC?** : The real agreement arrived at between then Prime Minister of India Indira Gandhi and her Pakistani counterpart Zulfikar Ali Bhutto at Simla in July 1972 was that the so-called 'cease-fire line' of December 17, 1971 between India and Pakistan, to be named the 'Line of Control' and this line of control be allowed to evolve as the 'international boundary' between the two neighbours. Bhutto agreed not only to change the cease-fire line into a line of control for which he had earlier proposed the term 'line of peace', but also agreed that the line of control be gradually endowed with the characteristics of an international border.

An important feature of the proposal was that neither country was going to demand territory because of the war. In addition, it did not involve the exodus of population from one side to another. Kashmiris as an ethnic community were left undivided on the Indian side.

Control of 740 kms length was therefore, an ethnic and linguistic frontier. In fact in 1947, at the time of Partition, it was also an ideological frontier-being the limit of the political influence of Sheikh Mohd. Abdullah and his National Conference party.

The strategic importance of the Srinagar-Leh road has been evident since the first war between India and Pakistan in Kashmir. It took more than a year after the first military operations began, for the road to be opened in November 1949. The objectives of Islamabad are quite clear and loud. All what they want is to undermine the Indian position on the Siachen glacier, cut off the crucial communication link-national high way 1A in the state, push the line of control into the state of Kashmir and thus to grab Indian territory. By creating such a war-like situation in the Kargil-Drass sector, Pakistan is seeking greater advantage to negotiate the Siachen issue - the one item on the agenda which Islamabad was keen to resolve during the last round of bilateral discussions.

In brief, Pakistan wants to chalk out a new map for Kashmir but today it stands isolated globally over the crossing the LoC and the resultant border war with India. The importance of reasserting the statute of the LoC as a binding instrument of Pakistan, as much as on India, cannot be over emphasised. That would be the essential primary step in rebuilding the bridge of trust and good faith between the two neighbours. The Prime Minister of India Mr Atal Behari Vajpayee has reiterated that the LoC is not negotiable. The inviolable status of the LoC is of paramount significance for it is central to peace and stability in Jammu and to Kashmir in particular. If peace is to last, Pakistan should recognise and accept LoC as a line of control and not as a line of conflict.

**Pak has the knack of duping India :** This is not the first time an Indian Prime Minister has taken Pakistani declarations at face value only to be taken for a ride

- It happened with Lal Bahadur Shastri. As the Indian and Pakistan envoys were signing the

agreement to submit the Rann of Kutch dispute for arbitration in June 1965, General Ayub Khan was preparing to unleash the 'Operation Gibraltar' infiltration force on Kashmir.

- Zulfikar Ali Bhutto wheedled the Simla agreement out of Indira Gandhi promising to work for conversion of the LoC into an international boundary and later let her down.
- General Zia-ul-Haq talked of a no-war pact even as he was supporting the Khalistani terrorists and pushing ahead with his nuclear weapons programme.
- Ms. Benazir Bhutto spoke to Rajiv Gandhi about greater understanding amongst the post-partition generations-even as her Inter Services Intelligence (ISI) was triggering the insurgency in the Kashmir Valley and the Pakistan army was toying with the idea of nuclear blackmail in 1990.

The Indian political establishment's reactive policy instead of a proactive one could be blamed for this fiasco all through.

**LoC and the Simla Agreement :** The LoC in Jammu and Kashmir was demarcated in accordance with the Simla Agreement signed between the heads of the two governments which stipulated that the line separating the two armies on the day of the cease-fire be delineated. The delineation of the LoC was effected in Suchetgarh on December 11, 1972. The entire 740-km length of LoC was divided into three segments namely the southern sector, central sector and the northern sector. In November and December 1972, two meetings were held between Field Marshal Maneckshaw and General Tikka Khan at Lahore and all the issues regarding the LoC were amicably resolved. The LoC starting from Sangam point NJ 9842 was reproduced on two sets of maps prepared by each side, each consisting of 27 map sheets formed into 19 mosaics. On December 12, 1972, the mutually agreement statement regarding the LoC was released in Delhi and Islamabad and on December, 20, 1972, a joint statement was released to the media

regarding withdrawal of troops to the international border and the LoC.

Pakistan's responsibility in regard to the line of control has been spelt out clearly in two articles of the Simla Agreement. As per article 1 (ii) 'Pending the final settlement of any problems between the two countries, neither side shall unilaterally alter the situation and both shall prevent the organisations, assistance or encouragement of any acts detrimental to the maintenance of peaceful and harmonious relations.

Article 4 (II) deals specifically about the line of control delineated on 19 mosaic maps finalised between General Bhagat and General Hameed on December 11, 1972 at Suchetgarh. The article says, 'In Jammu and Kashmir, the line of control resulting from the cease-fire of December 17,

1971, shall be respected by both sides without prejudice to the recognised position of either side. Neither side shall seek to alter it unilaterally irrespective of mutual differences and legal interpretations. Both sides further undertake to refrain from the threat or the use of force in violation of this line'.

The second article makes it clear that mutual differences and legal interpretations is no justification for actively abetting and aiding the violation of the LoC.

In the light of these two articles, it is clear that Pakistan has not only failed to abide by the provisions of the Simla Agreement in failing to prevent acts detrimental to peace and harmony, but exults in its moral and political support of those who have violated the LoC. □

## Pope in India A controversial state visit

The November visit of Pope John Paul II to India, after a gap of 12 years, brought to the fore a heated debate on the functioning of Christian missionaries and their 'operations' in India. The article briefly chronicles the historical advent of Christianity in India and the reasons for the current backlash against the Papal visit.

The Pope is the head of the Vatican City as well as the Holy Father of the 1000 million Catholic community throughout the globe. The Council called by the Pope has a final say on the missionary activities all over the world. Thus he holds a unique place in the religious and the cultural sphere of the world. There is no Ottoman Caliphate for the Muslims and the Sankaracharya does not enjoy such a clout over Hindus.

**Christianity In India :** In India, the Catholics constitute a mere 2.4% of the country's population. Christianity made its first appearance, with St Thomas, in Indian soil in 52 A.D. As early as 1498, Vasco da Gama, the Portuguese sailor, was generously received at the Court of Zamorin, the Hindu king of Calicut, who granted him the right



to establish warehouses for commerce. In 1510, Alfonso de Albuquerque seized Goa and unleashed a reign of terror by burning heretics, crucifying Hindu Brahmins and using force to convert lower castes, razing down temples to build churches etc. Of all the European colonisers, it seems the Portuguese symbolised best the total

disregard and destructive spirit of Christianity in India. The official machinery of the British Raj also extended its tacit support to the missionary activities. The Anglican missionaries who arrived in India soon after the British were not much different from their Portuguese counterparts. Their first target were the tribals, whom they promptly proceeded to name as the 'original' inhabitants of India- who they said were 'colonised' by the 'bad' brahmins during the 'mythical' Aryan invasion. They cleverly exploited the prevailing caste system of Hinduism to realise their objectives.

**Spread of Christian doctrine :** The Christian missionaries in India have, undoubtedly, contributed much in the fields of modern education, health, social welfare etc. States like Kerala, Goa, Nagaland, Manipur, Mizoram etc have been greatly influenced by their activities, which however, eventually ended up in large scale conversions. Sociologists are agreed that the high literacy rates and female emancipation in these states are largely the legacy of the missionary activities. Nevertheless, many Hindu organisations of today dispute that it was religious conversion which was their prime agenda- under the garb of social welfare liberally financed by the dollar power of the Christian-dominated western world. Religious conversion is an explosive socio-religious activity capable of igniting the centrifugal forces as it touches the sensitive subject of religion- which is a matter of honour for all socio-religious societies, whether modern, traditional or tribal. This is what which has led to recent clashes in remote areas of India. Swami Vivekananda termed religious conversion as 'religious perversion'. Mahatma Gandhi termed conversion as 'Pure Commerce'. The Supreme Court in the 1977 Bihar case has pronounced that the constitutional right of one to propagate a faith does not include a right to convert another. The missionaries need to learn much from Buddhism, which got spread to other parts of the world and genuinely got localised with indigenous traditions with no ethnic resistance. No wonder, when Prime Minister Vajpayee

recently called for a national debate on conversions of faith, his call found wide support. In a latest incident, the US-based Southern Baptists, has described Hinduism as 'Satanic' and Hindus as those living in 'spiritual darkness' and 'slaves bound by fear and tradition to false gods'. The Vatican openly declared that salvation has to come only through Jesus Christ and not by any other faith.

At Delhi, the Pope John Paul II in his visit on Nov. 1999, directed the bishops to make greater efforts to spread the gospel of Salvation (Christianity) throughout Asia. The Head of Vatican, has appreciated the 'religious freedom and tolerance' in India, but skirted the controversial issue of conversions, in his talks with the Indian leaders.

**The Hindu groups' concern :** The Rashtriya Swayamsevak Sangh (RSS), through its website, spoke of the terrorism indulged in by Christians in the North-East and induced conversion, which they view as a part of the conspiracy to divide the country. The Sanskriti Raksha Mandal (SRM), fumes in protest 'Loss of Religion is Loss of culture, Loss of culture is Loss of Identity'.

The much perturbed Vishwa Hindu Parishad (VHP) had lunged for a Papal apology, during his India visit, for the wrongs perpetrated upon India by the colonial powers of the Catholic Europe, especially for the Goan Inquisition during the 16th and 17th centuries- when Hindus and even Syrian Christians were slaughtered for resisting conversion attempts- and also for the destruction of Hindu temples. The VHP had also demanded a halt to all ongoing proselytisation activities of the Christian missionaries in India. Indeed, it is not hollow contention.

*Ipso facto*, the Pontiff had begged forgiveness from the Indian people of Dominican Republic for 500 years of pain and suffering at the hands of the Catholics. In a visit to Presova Slovakia, the Pope had apologised before the statues of 2 Calvinists, who were beheaded in 1687, for not

accepting Roman Catholic Christianity. In Jamaica, the Roman Catholic Church has decided to observe October 17 as a day of repentance for the genocide of Arawaks.

**The Union government's stance :** It goes to the credit of the BJP led Union government that without succumbing to domestic compulsions, they have welcomed Pope John Paul II as a State guest with all security and diplomatic protocols, along with a permission to hold a Mass free at a governmental stadium at Delhi. Although the

Papal visit did raise a controversy, the issues raised by Hindu organisations cannot be overlooked. It is imperative that Christian leaders also understand and respect the views and sentiments expressed by Hindu organisations on this sensitive issue and sincerely review and restrain their proselytisation programmes and adopt a conciliatory approach instead of a confrontationalist one. Such a move would definitely strengthen the secular fabric of the nation and promote true inter-religious harmony. ■

## Conversion and the law

### A constitutional insight

The attacks on Christian missionaries and the Prime Minister's call for a public debate on the conversions has brought the issue into the limelight. The article analyses how the issue had been debated by constitutional and legal luminaries down the years.

**The Constituent Assembly and the issue of religious propagation :** When the Constitution was being drafted fifty years ago, the Constituent Assembly had discussed the issue of religious propagation and conversion in depth and the members put in some very significant views. There was near unanimity among the Congress members of the Constituent Assembly in favour of a secular constitution. Most of the members were against granting of special rights related to religion to any religious group. The Christians who formed only a minuscule percentage of the population however argued that the right to propagate their religion must be a 'fundamental right'. After a lot of behind-the-scenes discussions, the Hindu members agreed to the Christian demand but in turn were insistent on another countervailing Article in the Constitution which explicitly banned religious conversions under coercion or undue influence. But when the Constitution was finally drafted, the Article dealing with conversions was dropped, but the Christian demand for right to

'propagate' religion was inserted which is now section 25(1) of the Constitution. Interestingly, no member of the Constituent Assembly said that the same article was equally relevant for Hindus as well. In the end, the said article came out as an exclusive non-Hindu right which was liberally used by the minorities to propagate their religion.

**The Patel Committee and the interim report :** It was the interim report submitted by the Advisory Committee headed by Vallabhai Patel which dealt with the issue of religion and Fundamental Rights. The Committee recommended the incorporation of two clauses in the chapter on Justiciable Fundamental Rights

The first clause said that all persons are equally entitled to freedom of conscience, and the right to freely profess, practice and propagate religion subject to public order, morality or health

The second clause made it clear that conversion from one religion to another brought about by coercion or undue influence shall not be recognised by law.

In the debate which ensued on these clauses, the first was passed smoothly while the second clause pertaining to conversions ran into trouble. While misgivings and apprehensions were voiced by Hindu members on the repercussions of the second clause, Christian members were



unanimous that the clause should be incorporated. The delicate issue of missionary activities, the potential for misuse of the clause and other aspects were passionately debated. Finally, Sardar Patel suggested a way out of the impasse by requesting that the clause relating to conversions be referred to the Advisory Committee for one last time. The Advisory Committee sent the recommendation that the clause be scrapped altogether. Finally, the Constituent Assembly voted to keep this provision from the chapter on Fundamental Rights. Conversions again figured when Article 19 (now Article 25) was discussed during the drafting of the constitution.

After another round of animated discussions, it was left to K.M. Munshi to defend the Article. Arguing that the word 'propagate' in the clause is not fraught with danger, he contended that the word 'propagate' be retained in the clause. Finally, the Article was adopted. Thus the Christians acquired the right to 'propagate' their religion while there was no legislation to ban conversions brought about by coercion or undue influence. It was not until the Supreme Court verdict in 1977 in the *Stainislaus Vs State of Madhya Pradesh* that the issue of 'propagation' and 'conversion' was tackled.

**The Orissa and MP High Court verdict :** Meanwhile in the 60s, the Madhya Pradesh and Orissa legislatures enacted laws to prohibit forced conversions and to punish the persons found guilty of such acts. The laws were the Madhya Pradesh Dharma Swatantraya Adhiniyam, 1968 and the Orissa Freedom of Religion Act, 1967. Both the Acts were challenged in the respective High Courts on the grounds that they violated the fundamental right to propagate religion as enshrined in Article 25(1). In an interesting development, the high courts of the two states gave different verdicts on the issue. While the Orissa High Court in 1972 struck down the Freedom of Religion Act, the Madhya Pradesh High Court in 1974 upheld the same of its state. The MP High Court further ruled that the MP legislature was competent to make

this law in the ambit of 'public order'. The Orissa High Court on the other hand held that the state legislature had no power to make such a law. The matter reached the Supreme Court and a five-judge bench headed by chief justice A.N. Ray took up the issue.

**The Supreme Court's verdict :** In his argument Rev Stainislaus who had filed the petition in the SC argued that the "right to 'propagate' one's religion means the right to convert a person into one's own religion and the therefore the conversion right is a fundamental right". The Court pointed out that the word 'propagate' had different meanings in different contexts. It further said that in Article 25(1), the word 'propagate' has been used in the sense of the dictionary meaning which means 'to diffuse, carry forward, to spread from person to person' and that in turn postulates no fundamental right to convert another person to one's own religion because if a person purposely undertakes the conversion of another person to his religion, as distinguished from his effort to transmit or spread the tenets of his religion, that would impinge on the 'freedom of conscience' guaranteed to all the citizens of the country alike.

Regarding the right of state legislatures to frame laws, the Court said the two impinged Acts clearly provide for the maintenance of public order for, if forcible conversion had not been prohibited, that would have created public disorder in the state. The Court referred to an earlier case of *Arun Ghose Vs State of West Bengal* (1970) which had held that if a thing disturbs the peace of the community, and not merely affect an individual, it would amount to disturbance of public order.

Citing the above ruling, the Court hearing the *Stainislaus* plea ruled that 'if an attempt is made to raise communal passions on the ground that some one has been 'forcibly' converted to another religion, it would in all probability, give rise to an apprehension of a breach of the public order, affecting the community at large. The Court

**Article 25** : Freedom of conscience and free profession, practice and propagation of religion.

1. Subject to public order, morality and health and to the other provisions of this Part, all persons are equally entitled to freedom of conscience and the right freely to profess, practise and propagate religion

2. Nothing in this article shall affect the operation of any existing law or prevent the State from making any law

(a) regulating or restricting any economic, financial, political or other secular activity which may be associated with religious practice;

(b) providing for social welfare and reform or the throwing open of Hindu religious institutions of a public character to all classes and sections of Hindus.

- The right to propagate religion was included in the Fundamental Rights on the insistence of the Christian community who argued that religious propagation was a basic tenet of

Christianity and therefore be a Fundamental Right.

- Apprehensions were raised by Hindu members on the move to make propagation of religion a fundamental right
- As a compromise it was suggested that conversions brought about by 'coercion and undue influence' should be banned.
- It was finally decided that the Constitution cannot have a provision prohibiting forcible conversion, the State would have the power to make necessary laws in this regard
- Most States found it convenient to ignore the issue and did not draft any laws for banning forced conversions
- The Supreme Court rejected the contention of the Christians that the right to 'propagate' religion enshrined in Article 25(1) is a right to convert people and instead said that what is enshrined in Article 25(1) is only a right to transmit or spread the tenets of one's religion.

therefore concluded that the States had the power to make laws for maintenance of public order. It further added that these Acts were 'meant to avoid disturbances to the public order by prohibiting conversions from one religion to another in a manner reprehensible to the conscience of the community'

It is unfortunate that it took the brutal killing

of the Australian missionary Graham Staines and his two sons to bring such issues into the realm of public debate. There is however the danger that in the ongoing frenzy by political parties for gaining maximum mileage, the broad political class of the country may choose to ignore the root causes of the problem and instead resort to temporary battle of words on the issue ■

## Remote Sensing

### A technological input for agriculture

**N**oted agricultural scientist Dr. M. S. Swaminathan opined that the new frontiers of technologies that may play a crucial role in maintaining the level of foodgrain production and also lead to sustainable agriculture are biotechnology, space technology information technology, microelectronics and management technology. Space technology in the form of remote sensing applications

and information technology are inter-related for the purpose of land and water management activities on a continuous basis and provide systems to support management decisions in agriculture. The satellites dedicated to remote sensing pass over a particular latitude at a particular local time. Thereby, the position of sun with respect to the spot under study on the earth's

surface remains fixed as the remote sensing satellite passes over it while revolving on its orbit. Aerial photography, aerial videography, multispectral RADAR etc. are various remote sensing techniques. The unique advantage of remote sensing over other methods of data collection is its intrinsic ability to collect vast amounts of data in short periods of time over large areas.

**Immense potential of remote sensing :** The remarkable developments in space-borne remote sensing technology and its applications during the last three decades have firmly established its immense potential for mapping and monitoring of various natural resources. India's indigenous remote sensing programme began with the launch of IRS-1A on 19th March 1988. On 29th August, 1991 the IRS-1B was put into orbit. On 15th October 1995, the country successfully launched its experimental remote sensing satellite IRS-P2 by the indigenously developed satellite launch vehicle (ASLV-2). The second generation IRS-1C and 1D satellites, with Linear Imaging Self Scanner (LISS-III) with a spatial resolution of 23.5m, Panchromatic camera (PAN) with a spatial resolution of 5.8m and a Wide Field Sensor (WiFS) with 188m resolution were launched on 28th December 1995. LISS-III is capable of taking infrared images and WiFS, can provide good pictures of vegetative cover and drought condition.

**Various institutions involved :** The Department of Space (DOS) and ISRO are the regulatory bodies for all our space programme projects including remote sensing. The National Remote Sensing Agency (NRSA) is one such leading agency which has been functioning since 1978. The Indian remote sensing programme is intended to be a key element of her ambitious National Natural Resources Management System (NNRMS) with its headquarters at Bangalore. Five Regional Remote Sensing Service Centers (RRSSCs) viz., Dehradun, Bangalore, Nagpur, Bhopal and Jodhpur were set up to be initially managed by the Department of Space. The use of remote sensing for agricultural purposes first

began in 1980 in the US by the U. S. Aerospace Remote Sensing (AGRISTARTS) which carried out agriculture and resource inventory surveys. With the passage of time, this became an important objective of the remote sensing activity. In India, other organisations like National Remote Sensing Agency (NRSA) Hyderabad, Space Application Centre (SAC) Ahmedabad, Geological Survey of India, Central Ground Water Board, Forest Survey of India, Oil and Natural Gas Commission, Survey of India, National Bureau of Soil Survey and Land Use Planning, All India Soil and Land Use Survey, State Departments of Mines and Geology, Forest, Agriculture, etc., have set up their own remote sensing centers for carrying out remote sensing projects.

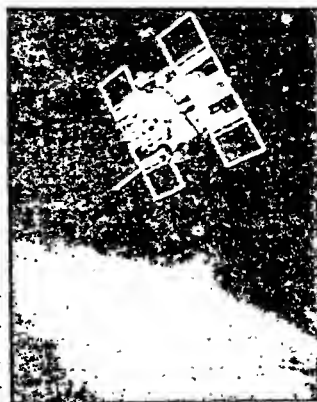
Agricultural scientists have long back recognised that an accurate and timely crop production forecasting system is an essential element in strengthening the food security and distribution system in the country. Periodic within-season estimates of crop health and yield and accurate forecast of likely range of growth conditions help in organising availability of inputs like pesticides and fertilizers. Preharvest estimates of crop production guides decisions to formulate optimal strategies for planning, distribution, price fixations, procurement, transportation and storage of essential agriculture products. India's vastness of area, specific features of certain topography and difficult accessibility of some regions, has therefore got special relevance for the use of remote sensing technique in agricultural management.

**Applications of remote sensing :** Satellite remote sensing has provided tool for acreage estimation one month in advance with more than 95% accuracy. In monocrop dominated areas, it is now possible to provide yield estimation ten days in advance with more than 90% accuracy. Field level management information is needed to further refine the satellite-based yield models. Mapping forest and vegetation cover and the land status to a scale of 1:50,000 using remote sensing satellite data has been made possible, most

ssfully and regularly by the Forest Survey  
ia. Similarly, land use or land cover map-  
covered on a scale of 1:250, 000 using IRS-  
d detailed soil mapping extensively over the  
geographical area has been carried out with  
ct to spectral characteristics of soil like soil  
, texture, mineral composition, organic mat-  
-content, nutrient toxicity and deficiency. The  
attempt in the area of crop area estimation  
crop production was made by the U. S. in  
-78, LACIE (Large Area Crop Inventory  
riment) to monitor wheat growing areas  
d the world using remote sensed data. Re-  
sensing also provides information regarding  
reducing biotic and abiotic factors like pests,  
esses, water and nutrient stress, watershed  
agement, disaster management etc. An  
gging technology known as PFT (Precision  
ing Technology) allows farmers to adjust the  
cation of inputs by duly considering the

in-field vari-  
ability of soil  
and crop con-  
ditions result-  
ing in the re-  
duction of the  
cost of produc-  
tion.

PFT uses  
the Global Po-  
sitioning Sys-  
tem (GPS),  
which com-  
prises 24 sat-  
ellites that transmit the signal's picked up by user



receivers to define the receiver's location. With this information and on board sensors and farm equipment like crop monitors and yield monitors, crop inputs and plant protection chemicals can be guided thereby reducing crop production

## Subsidies

### Need to contain it at sustainable level

he hike in the price of foodgrain articles under  
public distribution system and of urea and  
ketic cooking gas has once again stirred the  
ate over feasibility or otherwise of the existing  
-funded subsidy raj which has been the bane of  
an economy on account of the ever-growing  
penditure of the Central and State Governments.  
y be, the price hike in some other commodities/  
ices under the administered pricing mecha-  
-m (APM) is still on its way to negate the impact  
subsidies.

It is, however, not clear whether the BJP-  
Government has an integrated view on the  
-tly cut issue so as to make it politically sus-  
-tainable. And perhaps it is for this reason that  
the Minister Atal Behari Vajpayee has called  
for a broad national consensus on the subject of  
-living with the existing subsidies. Likewise,

Finance Minister Yashwant Sinha has sought an  
all-party consensus on the need to cut subsidies  
in the Union Budget.

Though the trend in direct tax collections is  
encouraging, indirect tax collections are lagging  
targets. The problem of large fiscal and trade defi-  
cits is pressuring the balance of payments and  
hurting investor sentiment, Mr. Sinha said.

Another dimension is with respect to effect-  
ing savings by the government through curtailing  
unnecessary expenditure on subsidy. The National  
Institute of Public Finance and Policy (NIPFP)  
estimates that around 14.5 per cent of the country  
gross domestic product (GDP) is expended in the  
form of subsidies, both visible ones such as the  
fertiliser as well as hidden ones such as those  
given by charging low fees for health and  
education services. The Government has made

inction between 'merit' goods and 'non-merit' goods for purposes of subsidies. Merit goods are those which benefit society as a whole and they include provision of elementary education, primary health care facilities, flood control and such other services. Non-merit goods, on the other hand, cover subsidies for farmers, electricity and higher education. The total cost of all kinds of subsidies is over Rs. 1,40,000 crore at present.

Now the time has come when the Government should prove through its actions that subsidies, both open and hidden, enjoyed by the rich of the farm and industrial sectors, are phased out. Only then it has the moral right to reduce its fiscal deficit by cutting subsidies. Moreover, curbing non-plan, nondevelopment expenditure, along with phasing out of subsidies to release greater resources for public investment programmes needs to be given top-most priority. Also, for managing government finances more effectively it is utterly essential that some goods and services be deprived of subsidies altogether, while in some it may be gradual.

No wonder, government have, over the years, doled out subsidies to favoured constituencies liberally unmindful of the fiscal consequences. Though the every poor do need some level of protection, it is also a fact that most subsidies benefit the high and upper middle-class while they also leak into the open market, thus negating their purpose. The PDS, over the years, has outlived its usefulness and needs to be whittled away and perhaps, eventually, even done away with except for those living below the poverty line.

The food and fertiliser subsidy outgo in 1997-98 has been Rs. 18,000 crore as against Rs. 13,700 crore actually spent in 1996-97, registering a hike of Rs. 4,300 crore. Subsequently, in 1998-99, the initial projections were Rs. 19,383 crore which are all set to cross the Rs. 22,000 crore mark. Thus, subsidies have been going up quite substantially from year to year.

The Planning Commission has recommended that indirect subsidies, in the form of

budgetary support to loss-making state public sector units (PSUs) like state electricity boards and state road transport corporations, also need to be pruned and user charges for services rendered to the public be raised. This includes user charges for rural electricity and irrigation water as well. It also wants that subsidy for higher education should be gradually phased out and in the next five years it should be reduced to half of what it is today.

Any increase in the relevant user charges would lead to a more than proportionate increase in cost recovery owing to increase in user price and reduction in quantity demanded. There would then be positive secondary effects on fiscal deficit because the overall efficiency in the economy would enhance with an improved utilisation of scarce resources like water, power and petroleum. With increase in efficiency, the consequent expansion of tax base and rise in tax revenues would further reduce the fiscal deficit.

The bulk of non-merit subsidies is consumed by industries, especially the public sector enterprises and agriculture. These sectors of the economy are amenable to economic pricing. Even if a part of the non-merit subsidies are continued in the interest of redistribution or provision of minimum needs, a substantial part of these subsidies could be withdrawn because of inefficient cost of public services and inessential input or output subsidies.

Of the total subsidies of Rs. 1,40,000 crore Central subsidies amounted to Rs. 45,000 crore and state subsidies Rs. 95,000 crore. Just as imposition of tax discourages consumption and production of the taxed commodity, subsidy encourages consumption and production of the subsidised goods. The rationale for subsidisation is that the social benefits of the government's activity are larger than the private benefit. But then, when a substantial part of these subsidies is on goods and services which do not qualify on this criterion it is necessary to do without them. Today, subsidies on such non-merit goods are as high as 10 per cent of the total subsidies.

Total Subsidies				
	CENTRE		STATE	
	Total (Rs crore)	Recovery Rate (%)	Total (Rs crore)	Recovery (%)
Merit Goods	6,923	2.4	28,270	1.0
Meritary Education	1,629	0.2	9,377	0.9
Public Health	97	9.6	997	1.9
Roads & Bridges	1,654	2.9	4,295	2.2

### Subsidies in Social and Economic Services : 1994-95

		Rs. in crore	
		Centre	States
Social Services		Total	
Merit Goods/Services		2605.21	20763.20
Non-Merit Goods/Services	Subsidies	2497.25	28220.14
	Recovery Rate %	18.14	3.97
Economic Services			
Merit Goods/Services		7506.80	11824.59
Non-Merit Goods/Services	Subsidies	33627.58	37800.28
	Recovery Rate %	11.65	12.87

Overall a crucial aspect of the concept of subsidies is whether they can be withdrawn and phased out. There are good reasons to question the extent of subsidy found in the provision of goods and services by the government. If production is undertaken efficiently, then the difference between the total cost and recoveries can legitimately be treated as subsidy. However, this argument may not be tenable as the low recovery rate is more due to high gestation period, poor maintenance and wrong product choice and so on. When an irrigation project takes, for example, another five years, after the target date, the cost would then be subsidised for users but only because implementation has been inefficient. Such examples of subsidies are too many to enumerate.

Ultimately, therefore, the issue is one of creating competitiveness among producers of all types so that cost and prices are reduced to the minimum through efficiency. If that can be done then the need to give subsidy would not arise. It is

good that the Government is thinking on the lines of doing away with the administered price mechanism. If the domestic price is high, let there be imports at lower prices so that competition among domestic producers is accelerated.

Time is now ripe enough for making serious efforts to identify and restrict governmental spending which has the effect of subsidising consumption by the rich. Also, medium and large farmers who corner most of the subsidised credit as also other subsidised inputs need to be charged the same rates as others, if only to make subsidised benefits available for the less advantaged groups. In the matter of transfer of resources from the Centre to the States, appeasement should not be the basis of Central plan assistance.

The precarious state of the Centre's finances can be gauged from the fact that its public borrowing shot up from Rs. 59,000 crore in 1997-98 to a projected Rs. 68,000 crore in 1998-99, which is an increase of over 15% in a single year.

As a percentage of GDP, the combined fiscal deficit of the Centre and the States is about the same as the total volume of "non-merit" subsidies, which the National Institute of Public Finance and Policy (NIPFP) has estimated at about 14.5 per cent of GDP. The subsidies include those on food, fertilisers, state transport undertakings, the railways, petroleum products, subsidised (and in some State, free electricity for agriculture and irrigation, and below-cost water supply. The NIPFP study found that only one-fifth of these subsidies actually benefitted the poor. More than 50 per cent of the Rs. 95,000 crore fiscal deficit (amounting to six per cent of the GDP) projected for the current financial year is expected to be used for meeting the government's current

consumption (revenue) expenditure.

Clearly, the need to curb all types of non development expenditure, to effect economic wherever possible, and to stop the leakage of government funds cannot be minimised. So far fiscal profligacy and fiscal deficits have gone hand in hand, leading to inflationary pressures and distortions in the financial system. Since the task of reducing such expenditure is beset with difficulties, the Government should also devise ways of mobilising more revenues. Surely, a lot of grey areas, barriers and leakages could be plugged and removed for effecting sizeable savings. Failing this, the price of profligacy will have to be paid in one form or the other more probably hyper-inflation taking the better of economic growth itself.

## G-15

### Time for putting up a united face

The ninth Summit of the G-15 (now 17) group of developing nations was held in the picturesque resort town-Montego Bay (Jamaica). The three-day summit which concluded on February 12, 1999, gave a clarion call for the developing world to be given a voice in the process of reforming the international financial system. The summit which was marked by the inclusion of Sri Lanka as the 17th country of this group was attended by seven Heads of State and Government. These included - the Sri Lankan President, Ms. Chandrika Kumaratunga, the Malaysian Prime Minister, Mr. Mahathir Mohammad, The Senegal President, Mr. Dionf, the newly elected Venezuela President Mr. Chavez, the Nigerian President, Mr. Abu Bakar, the Zimbabwean Prime Minister, Mr. Robert Mugabe and the Indian Prime Minister, Mr. Atal Behari Vajpayee.

**Background :** The summit level group for South-South consultation and cooperation known as the G-15 came into existence during the ninth non-aligned summit in Belgrade in September

1989. The intention was to create a functional compact group of developing countries that could work towards, and focus on South-South economic cooperation, through the highest possible political level engagement. The forum takes into view the growing interdependence and mutuality of interests within the community of nations, and in recognition of this, endeavours at tapping all opportunities so as to provide a stronger basis for collective self-reliance.

Membership of the group includes both non-aligned and other developing countries. Original members being Algeria, Argentina, Brazil, China, Egypt, India, Indonesia, Jamaica, Malaysia, Mexico, Nigeria, Peru, Senegal, Venezuela and Zimbabwe. Though the membership has now been extended to 17, with the inclusion of Kenya and Sri Lanka, there has been no change in the group nomenclature.

The secretariat of G-15 is in Geneva. Its headquarter is rotated to the country which is chairman of the group. This group of 15 (now

developing countries, which completes a decade of its existence in September this year, was established on the premise that there is considerable scope for mutually beneficial economic cooperation among developing countries, with a view to achieving collective self-reliance in an increasingly interdependent and globalising world. The Group is unique as it encompasses major countries across three continents: Asia, Africa and Latin America. It is trans-regional, yet cohesive. It is complementary to the efforts of the larger South-South cooperation fora like - G-77 and NAM.

**The mandate :** The mandate of the G-15 adopted at its inception in 1989 was:

- To identify new specific and concrete ideas or schemes to foster South-South cooperation, commit their governments to them and mobilise wider support
- To hold a review of the world economic situation and the state of international relations affecting developing countries with a view to developing common perceptions on them and suggest common strategies including initiatives to be proposed in North-South fora.

**Rationale and relevance of G-15 :** Most G-15 countries are well endowed in natural resources. Some are relatively developed economies with large diversified industrial base, developed well developed infrastructure and advanced technological capabilities. Though not major exporters of capital, some are becoming significant overseas investors. Many G-15 countries are rich in human resources and have strengths in specific services, sectors and technologies.

The G-15 provides a forum for seizing new opportunities in the post-cold war era by making full use of the emerging complementarities amongst member countries.

- G-15 countries are adopting outward oriented macro-economic policies to put their economies on a high growth path. With the increasing competition for trade the traditional markets of the North, and high growth in certain G-15 countries, it is necessary for these countries to

## G-15 : at a glance

- Established in 1989 in NAM Summit, at Belgrade
- Members : Algeria, Argentina, Brazil, Chile, Egypt, India, Indonesia, Jamaica, Malaysia, Mexico, Nigeria, Peru, Senegal, Venezuela, Zimbabwe, Kenya, Sri Lanka.
- Summits
 

1.	1990	Kuala-lumpur (Malaysia)
2.	1991	Caracas (Venezuela)
3.	1992	Dakar (Senegal)
4.	1994	New Delhi (India)
5.	1995	Buenos Aires (Argentina)
6.	1996	Harare (Zimbabwe)
7.	1997	Kuala-lumpur (Malaysia)
8.	1998	Cairo (Egypt)
9.	1999	Montego Bay (Jamaica)
- Fact-file : The G-15 countries collectively account for 34 per cent of the world population, 6.7 per cent of the world GDP, 6.27 per cent and 6 per cent of world exports and imports respectively, and 3 per cent of world arable land. The share of G-15 in all developing countries is 66 per cent in population, 43 per cent in GDP, 25 per cent in exports, 22 per cent in imports. Among the G-15 countries, the per capita income varies very widely. The per capita income is highest in Argentina (\$7220) and lowest in Nigeria and India (\$300).

expand their trade and investment cooperation with each other.

- G-15 countries are members of regional economic groupings in their area. For instance, Indonesia and Malaysia are members of ASEAN, AFTA and APEC; India of SAARC and SAPTA; Brazil and Argentina are members of MERCOSUR; Peru and Venezuela are in the Andean Pact; Jamaica is in CARICOM; Zimbabwe is in SADC and COMESA; and Mexico is in NAFTA.
- The structure of the G-15 provides an appropriate forum for networking among member



countries for South-South cooperation. This is possible at different levels. Being a summit-level group which meets annually, it gives the member countries the opportunities for a regular exchange of views and decision-making at the highest political level. The forum also has built-in institutional arrangements for meetings at the level of foreign ministers and senior officials. The scope of networking also envisages interaction among the business communities of G-15 countries. This private sector interface has been further strengthened following the committee on investment, trade and technology (CITT) initiative.

The G-15 provides more focussed efforts for North-South dialogue in order to supplement and complement the endeavour of larger fora like the G-77 and NAM. The necessity for a creative and on-going dialogue between developed and developing countries remains as compelling as ever.

Another strength of the G-15 is that many of its member countries have special links with institutions of the North-like the OECD and G-7, as well as with regional groupings involved with global economic policy-making. Through these linkages, the G-15 countries are in a position to put across their views more effectively on global issues of concerns to all countries.

**Various summits :** Annual summits of the Group of fifteen developing nations have taken place every year on a regular basis. Except for the year 1993, 1990 onwards-several heads of governments and states have come together every year to update and prioritize the forum, in the context of the shifting international political and economic paradigms. The first summit of the G-15 took place in Kuala-lumpur (Malaysia) in 1990, second in Caracas (Venezuela) in 1991, third in Dakar (Senegal) in 1992, fourth in New Delhi (India) in 1994, fifth in Buenos Aires (Argentina) in 1995, sixth in Harare (Zimbabwe) in 1996, seventh in Cairo (Egypt) in 1998 and finally the ninth summit in Montego Bay (Jamaica) from February

10 to 12, 1999.

**The Montego Bay (Jamaica) Summit, 1999 :** The ninth summit of the group of fifteen called for the developing world to be given a voice in the process of reforming the international financial system. The summit took note of the fact that the reverberations of the global financial turmoil still continues to be felt in all parts of the globe. The forum of G-15 hence underlined in the Montego Bay Summit - the need for institutional reform, which would be more democratic and transparent and accountable to its member and a redesign of the policy framework-which would be more appropriate to national circumstances.

The Summit meeting therefore stressed the need to set up an "International Consultative Process" to ensure that the reform architecture accommodates the views of both the North and the South, with the G-15 being an important group in this regard.

In a joint communique issued on the concluding day of the three-day summit, the G-15 welcomed the initiation of the official-level-dialogue between the chairman of G-15 and the president of G-8. The communique stressed the indispensability of a "community of interests" between developed and developing countries and reaffirmed market based policies. It took note of the slow pace at which progress was being made at financial system reforms and thereby suggested some concrete steps to be taken in this regard, viz: developing mechanisms and adequate rules to monitor and supervise operations of large financial market players, including hedge funds and speculators. These could provide the governments with an international framework of principles to act as an early warning system for the adoption of appropriate policy responses.

It also suggested greater coherence between the WTO (World Trade Organisation) and relevant international monetary and financial institutions respecting their mandates, confidentiality requirements and the necessary autonomy in decision

aking procedures of each institution and avoiding the imposition of additional or cross conditions.

Among other things, the communique called for the inclusion of social safety nets as integral parts of development policies and programmes at both the micro and macro levels, thereby ensuring they meet the basic needs of the poorest and most vulnerable sectors of the population.

On crucial international trade issues, the summit welcomed India's offer to host a meeting of G-15 Trade Ministers in August 1999, to help developing countries form a consensus preparatory to the forthcoming World Trade Organisation (WTO) review meeting at Seattle in November this year. In addition, it also endorsed India's proposal to evolve a strategic sector approach for South-South cooperation, focussing on biotechnology, information technology and infrastructure development.

**Problems and bottlenecks :** Ten years into its career, G-15, the grouping of developing nations, is yet to establish its credentials as an interlocutor in the global dialogue on economic policy. It may in fact not be unfair if the G-15 leadership is accused of converting the summits into desultory talking shops uninterested in any action plans for furthering their common trade and investment interests. The setting up of this group for South-South cooperation, coincided with the beginning of what is now commonly referred to as the globalisation of the world economy and it was expected that this group would work out its specific agenda for effectively dealing with the pangs of transition.

This could have been done by economic restructuring and liberalization on the one hand and the expansion of intra-trade investment, technology transfer and technical cooperation on the other. But the experience so far indicates a sort of inertia on both the counts, resulting in unpreparedness to work out any common stand in the face of a hardened attitude of the developed countries.

The financial pandemic which first erupted in South-east Asia in 1997, seemed likely for a while to provide a fulcrum to unite the disparate interests of the nations represented in the forum. But three summit meetings later—in Kuala Lumpur, Cairo and recently in Montego Bay (Jamaica)—convergence of perception seems more elusive than ever.

For all its importance, the summit in Jamaica could not even attract the full complement of heads of government. Only 8 out of the 17 heads of state bothered to show up. This is unfortunate since most developing countries are today beset by mounting anxieties about the state of their economies. The economic meltdown in South-east Asia in 1997 has spread to other parts of the globe. With Russia and Brazil having already fallen a victim to it, there is now talk of the Asian countries getting 'reinfected' all over again.

In addition, the Asian crisis has led to a slight dampening in the OECD's (Organisation of Economic Cooperation and Development) enthusiasm for the speedy conclusion of a multi-lateral agreement on investment. Also, the present global economic outlook is not conducive to the expansion of trade and investment of the developing countries. With the U.S. Government reviving Super 301 as a trade weapon to browbeat them, the G-15 countries are in for another bout of problems.

**Future prospects :** Given this backdrop, if the G-15 leaders are serious about dealing with the adverse consequences of globalisation, they will have to be more aggressive in first defining their own national interests and then standing up for these at all international economic fora. The G-15 should forge a common strategy on meeting the challenge of the protectionist practices which are being increasingly resorted to by the richer nations. They should take note of the new challenge to multi-lateralism and prepare a common programme to deal with the issue of differential treatment to the South even in the

agreements of the World Trade Organisation (WTO). Note also should be taken of the problems arising from the OECD countries' insistence on imposing its multi-lateral investment agreement on the developing countries, which will only lead to the unrestricted entry of foreign capital.

In the face of such stubborn attitude of the developed countries, the G-15 has to work out an agenda for both trade and investment

cooperation, so that they acquire sufficient bargaining power. It must do the necessary homework and come up with proposals that its partner will find acceptable. In the past, consensus among developing countries have had an alarming tendency to melt away at the first sign of pressure from the rich countries. Hence, when the solidarity inevitably breaks down, India must be prepared to go it alone

## Fiscal Deficit

### A comprehensive insight

The term fiscal means 'pertaining to public treasury' or revenue. 'Fiscal year' refers to the year for which the public (government) income and expenditure are accounted for. Fiscal year, in essence, is not different from 'financial year'. Americans use the term 'fiscal year' for 'financial year'.

Fiscal problems are the most appalling problems for the government of any country, especially that of a developing country. The severity of the problem intensifies with the widening gap between income and expenditure. An individual or a government trying to live beyond his/her means is driven to the brink of bankruptcy. The amount of expenditure more than income can be offset through borrowings to a reasonable extent. Such borrowings for productive and developmental purposes are not risky. However, if unproductive and non-developmental outlays are met by raising loans, the debt burden assumes backbreaking proportions. Developing countries with lower incomes on the one hand and gigantic needs of expenditure on the other, find it extremely difficult to maintain fiscal balance. However, what is fiscal balance?

**Concept :** To have a clear perception of the term fiscal balance, it is very necessary to identify its components. Receipts and expenditures are the two pillars of fiscal structure.

Nevertheless, all receipts and all expenditures do not form part of fiscal structure. The comparative chart given below as per the most recent accounting procedure of the Govt. of India represents the respective two sides of fiscal balance. Perception of fiscal balance differs from country to country and time to time. The figures of the chart given here may reflect one of the three possibilities.

First, if the receipts and expenditures are equal to each other or both sides of the fiscal balance is said to be in equilibrium may appear to be an ideal target but it is seldom prudent to achieve this target by slowing down growth.

Secondly, if the receipt side outweighs expenditure side the difference represents fiscal surplus. It is practically a forlorn hope or a dispossibility.

Third, if the expenditure side outstrips receipt side, the difference represents 'fiscal deficit'. This is the fate of almost all countries in the world, especially those of the developing world. Fiscal deficit is a global phenomenon. The fiscal deficit is defined as the difference between revenue receipts (net) plus non-debt capital receipts and the total expenditure including interest on external debt. This represents the shortfall in the non-debt resources for financing

central government operations. It is not pertinent to pinpoint that revenue deficit is not same thing as fiscal deficit. The former is a narrower concept. The negative outcome of revenue receipts (Tax plus Non-Tax) minus revenue expenditure (plan and non-plan revenue expenditure excluding interest payments) reflects revenue deficit. The revenue deficit indicates the extent of borrowing required for financing current expenditure. Primary deficit is altogether a different concept. Primary deficit denotes fiscal deficit minus interest payments. The primary deficit is an indicator of current fiscal operations of the government.

**A sound fiscal policy is necessary :** The level of economic development of a country depends considerably on the proper formulation and effective implementation of its fiscal policy. Fiscal policy connotes the ways and means of handling income and expenditure to attain pre-determined goals. Broadly speaking, the objectives of fiscal policy are to ensure economic stability, generation of employment, poverty alleviation and attainment of development goals. The analysis of fiscal policy is in fact the analysis of taxation, non-tax sources of government income, public expenditure, public debt, subsidies etc.

**Various definitions of fiscal policy :** Different economists and financial experts have defined fiscal policy in different ways. J.K. Hicks has defined fiscal policy in the following words "Fiscal policy is concerned with the manner in which all the different elements of public finance, while still primarily concerned with carrying out their own duties, may, collectively be geared to forward the aims of economic policy". The definition given by Arthur Smith is relatively more revealing. To quote Smith "Fiscal policy is a policy under which the government uses its expenditure and revenue programmes to produce desirable effects and avoid undesirable effects on the national income, production and employment."

**Main objectives :** The primary objectives

of fiscal policy include (i) sustainable economic development, (ii) economic stability (iii) employment generation, (iv) poverty alleviation and (v) reduction in economic disparities. Thus, the fiscal operations of the government for promoting economic development of an underdeveloped country have four dimensions viz., as an investor, as a saver, as a stabiliser and as an income redistributor. In concrete terms, the objectives of fiscal policy in a mixed economy comprise the following

- To accelerate productive investment in public as well as private sector.
- To mobilise physical and financial resources for investment requirements of public sector but paying full attention to the needs of the private sector
- To ensure a logical compatibility between growth rate and monetary stability, and
- To ensure equitable and just distribution of rising national income

The United Nations sub-commission has also outlined some fiscal policy objectives for underdeveloped countries. They are

- To remove excessive and detrimental disparities in the distribution of income and wealth. Expansion of domestic market and curtailment of relatively less important imports are essential to attain this objective
- To take remedial measures for the containment of inflation, which surfaces as a natural offshoot of developmental process
- To motivate and induce priority areas through all possible incentives, to give a definite direction to economic development in accordance with national priorities
- To channelise maximum amount of savings for productive investment.

The objectives delineated above may not all be completely cohesive. For example, high growth rate is not in consonance with redistributive objective. Similarly, undue emphasis on redistributive factor will erode the incentives necessary for investment and hard work and growth

may suffer. Prudence lies in reconciling the contradictions of conflicting objectives. Weightage to be assigned to a particular objective depends on the economic and social philosophy pursued by the government of a particular country.

**Fiscal impact on growth :** Classical economists were in favour of 'balanced budget'. In their view, surplus budget is as undesirable as deficit budget. Surplus generated through additional taxation or higher rates of taxation stabilises government expenditure and takes away the resources, which would otherwise have been spared, for productive investment in the private sector. Besides, fresh doses of taxation imply flow of resources from private sector to public sector, which is unproductive. Conversely, deficit budget compels the government to take recourse to public borrowing. This again makes inroads into the resources available for private investment. Reduction in private investment lowers the level of production and consequently the prices go up. The government requires additional resources to repay debts. This may necessitate fresh taxation and fresh borrowing. This fresh public borrowing and fresh taxation add momentum to the movement of resources from the private (efficient and profitable) sector to the public sector (inefficient and unprofitable). It is well known that classical economists always treated the public sector as unproductive and inefficient and they were staunch protagonists of the policy of laissez-faire or policy of non-interference. They were advocates of free market economy.

However, economists like Keynes and Lerner do not concur with the classical viewpoint. They do not agree with the doctrine that supply creates its own demand and free play of market forces (demand and supply) automatically creates equilibrium in the economy and provides full employment to the factors of production. Keynes is of the opinion that in developed economies the propensity to consume falls with the rise in income. Simultaneously, the propensity to save displays persistent upward trend. Upward trend in saving and

downward trend in consumption lead to demand inertia, which in turn creates imbalances in the economy and a glut in the market eventually leading to a depression. Under such circumstances the government can ill-afford to remain a nonchalant spectator and allow things to drift.

The economy can be saved from sagging by pursuing the principle of functional finance. The principle of functional finance says that the government is duty bound to regulate and control the economy through taxation and public expenditure as warranted by the changing circumstances. In the hour of demand inertia, the government should come forward with additional doses of public expenditure to bolster purchasing power and stimulate demand. In economic parlance, this is called pump priming. The tendency of decreasing demand for products and services due to declining propensities to consume can be stopped and reversed by extra doses of public expenditure. Because this extra expenditure will offset the diminution in active purchasing power caused by increased saving. Thus the government will be able to combat demand crisis and maintain the present levels of income and employment.

#### Role of government during recession

The role of the government becomes more important during recession when effective demand falls short of the availability of products and services due to paucity of purchasing power. Such a situation of glut in the market results in unemployment or underemployment. The government can enhance its expenditure in two ways to overcome this imbroglio, first by directly undertaking large construction works, and second, by indirectly encouraging the people to spend more.

Thus, fiscal policy is an economic mechanism which the government of a country uses to encourage the factors that are expected to entail a favourable impact and to discourage those which are expected to entail adverse impact on output, employment, income and consumption. Deceleration in output, employment, income and

consumption sounds the death-knell of an economy. The instrument of fiscal policy is nothing but a well-defined and well thought out programme of public revenue and public expenditure. The government of a particular country having full regard to the national and international economic environment at a particular juncture chalks out this programme. To bring equilibrium in demand and supply (which is a necessary precondition for full employment), such changes are made in the revenue and expenditure programmes as are warranted by a particular situation. Hence, modern fiscal policy is chiefly concerned with the application of the principle of functional finance.

**Remedies for fiscal deficit :** To bridge fiscal deficit four remedies are available to the government, viz. (i) Loan from the Reserve Bank of India (ii) Loan from the public at large, (iii) Foreign loans, and (iv) Issue of notes. The repercussions of the remedial measures of fiscal deficit emanate from two factors- (i) Increase in money and (ii) Increase in loans. Increase in money supply and credit creation pumps into the market additional purchasing power, which in turn creates inflationary conditions. Inflation acts as a stimulus to traders and manufacturers. They can earn abnormal profits during inflation because of the price spiral. The costs of the inputs do not rise commensurately with the prices of their outputs. On the other hand, the income of fixed income group falls in real terms and they feel hard-pressed. The industrialists and traders accentuate their gains by plundering the pockets of the common people, which by implication means flow of income from the poor to the rich. Thus the prevailing inequalities are widened further. Besides, the value of domestic currency goes down in relation to foreign currencies. Foreign investors fear to invest amid such volatility. Fiscal deficit necessitates loans, mounting loans exacerbate the burden of interest payments, and every increase in non-plan expenditure creates a compulsion to shelve several developmental projects. Therefore, it is extremely essential to restrict the fiscal deficit within safe

limits. Normally 2 to 3 percent of GDP is considered the safe limit for fiscal deficit.

According to Keynes, public expenditure and taxation are balancing factors in maintaining the national income at a given level. The government steps up public expenditure, reduces tax rates and takes recourse to deficit financing during depression. On the contrary, public expenditure is cut back, tax rates are revised upward and surplus budget is preferred during inflationary conditions.

**What is compensatory finance?** : This increase or decrease in public expenditure and tax rates to counteract the adverse effects of trade cycle is called compensatory finance. Compensatory financing is essential to maintain public expenditure at the optimum level. Keynes has rightly asserted that the level of employment depends on total expenditure, either on consumption or on investment. For generation of employment, both consumption and investment should be encouraged. Consumption expenditure raises demand and in turn propels investment. With every increase in investment, the levels of output, employment and income go up. Investment expenditure depends on the productivity of capital and rate of interest. Higher productivity and lower rate of interest provide a fillip to investment and vice-versa. Compensatory finance not only governs consumption and investment propensities but also plays a crucial role in restricting price fluctuations.

**Latest measures :** Though the people are fed up with the previous finance ministers' promises of reducing the fiscal deficit of the Centre to zero, ever since 1991, the budget speech of Mr. Yashwant Sinha on February 27, 1999 repeated the same promise. However, this time the promise seems more credible. One week before the presentation of the budget, the Prime Minister convened a meeting of the National Development Council (consisting of the chief ministers of all the states) to deliberate and devise ways & means to gradually reduce the fiscal deficit to zero over a

specific period of five years. The chief ministers decided to set up a committee consisting of the finance ministers of six states under the chairmanship of one of the chief ministers. This Committee held its first meeting on March 20. First of all, the committee of six chief ministers set up a subcommittee of experts entrusted with the task of preparing a state-by-state plan for eliminating the revenue deficit within five years. The experts were given only eight weeks to accomplish their task and put up state-specific suggestions for 25 states. It goes to prove the seriousness of the Vajpayee Govt. about reducing fiscal deficit. This businesslike attitude is commendable.

By 1998-99, the revenue deficit of the states had reached Rs. 26,400 crore and their total fiscal deficit had crossed Rs. 59,700 crore. This is an estimated 3.6 percent of the GDP. The financial plight of the states is becoming increasingly desperate in view of the sum of their own revenues and grants from the Central Government falling far short of their recurring consumption expenditure. They have to borrow to bridge even the gap in consumption.

**Centre's deficit :** But what about the Central fiscal deficit? The Vajpayee government has contemplated a medium term plan to reduce the Centre's fiscal deficit to zero over a five-year period. The original estimate for 1998-99 was 5.6 percent based on the old GDP series. As per revised estimates, it would have been 6.5 percent of GDP. However, the Central Statistical Organisation (CSO) made a revision on the assumption that the size of the economy has enlarged by 9 percent to 10 percent. So the deficit of Rs. 1,03,737 Crore in 1998-99 is now equivalent to 5.9 percent of the GDP instead of 6.5 percent. Since the ratio is usually expressed in terms of the percentage of GDP, the higher the denominator, the smaller will be the ratio.

In the budget estimates for 1999-2000 the fiscal deficit appears to have been contained at Rs. 79,955 crore or at 4 percent of the estimated GDP. But then which magical factor has reduced

the fiscal deficit in absolute terms from Rs. 1,04,955 crore to Rs. 79,955 crore, and as a percentage of GDP, from 5.3 percent to 4 percent? This reduction is attributable to the change in accounting procedure. Now the loans to the state Governments on small savings collections from the NSS, Indira Vikas Patra and the PPF are not included in the capital expenditure as was being done in the past. Small savings are collected by the Centre, which relends 75 percent of the collections to the states.

These collections were shown as borrowings in the Centre's accounts but 75 percent of these collections lent to the states were shown as fiscal expenditure. Since the fiscal deficit is the difference between net revenue receipts plus nondebt capital receipts and the total expenditure, including loans, the three-fourths of the collections which do not remain with the centre were not considered as receipts but counted as expenditure. This naturally used to inflate fiscal deficit. This practice has been abandoned this year. Now a separate entity outside the public account will take care of small savings. Only 25 percent of the collections remaining with the Centre will be included in the deficit. Thus exclusion of Rs. 25,000 crore of small savings from capital expenditure representing 75 percent of the expected collections to be lent to the states, and transfer of the same to new small savings entity has in fact brought down the estimated fiscal deficit from 1,04,955 crore to Rs. 79,955 crore or from 5.3 percent of GDP to 4 percent of GDP.

Though the size of fiscal deficit equal to 2 to 3 percent of GDP is considered reasonable, the Government of India has contemplated to achieve the zero level target. Reduction of fiscal deficit requires two-pronged efforts at augmenting revenues on the one hand and curtailing expenditure on the other. The budget of 1999-2000 provides for largest ever mobilisation of additional revenue of Rs. 9,334 crore comprising surcharge on corporate tax (Rs. 1,100 crore), personal income tax (Rs. 2,000 crore), fresh levies of excise through

isation of rates (Rs. 4,765 crore) and customs duties (Rs. 1469 crore). Eighty percent of the additional burden is likely to be shifted to the common man through higher costs and prices. The gross tax revenue of the centre is projected to grow by as much as 19 percent in 1999-2000. Revenue from excise duties is to increase 20 percent and customs by as much as 18 percent. Both count for almost two-thirds of the aggregate tax revenue of the centre. Out of Centre's total financial requirements of Rs. 1,03,521 crore, the budgetary support is for Rs. 44,000 crore and the remaining Rs. 59,521 crore are to come from the public sector.

**Rising expenditure :** Revenue deficit is likely to decline from Rs. 60,474 Crore in 1998-99 to Rs. 54,147 crore in 1999-2000. Capital expenditure including loans to the State Governments and small savings collection will amount to Rs. 1,895 crore- an increase of 12.7 percent over the level recorded in 1998-99. Plan expenditure is

set to grow by about 8,600 crore while non-plan expenditure is expected to decline by Rs., 6,700 crore (mainly due to withdrawal of some subsidies). The capital outlay on defence is budgeted to increase in 1999-2000 by 20 percent. The centre's non-plan expenditure as a percent of total expenditure would be 27 percent on interest, 14 percent on defence, 7 percent on subsidies, 13 percent on other non-plan expenditure (administration, pension etc.) and 2 percent on non-plan assistance to States and Union Territories.

Unproductive expenditure alone is 13 percent more than the total revenue. Interest payments account for as much as half of the non-plan expenditure. The Government is naturally concerned about the colossal non-plan expenditure and has decided to set up an Expenditure Reforms Commission, which would suggest measures to ease the crisis

\* (The article was written before 2000-01 budget)

## Social Forestry Schemes

### Revamping is the need of the hour

India's forest cover, according to the latest official estimates, has been put at 19.82 per cent of the land area which is 329 million hectares. At the time of independence, nearly 75 million hectares or about 22 per cent of the area was under forests. About 175 million hectares of land is supposed to be wasteland due to degradation, while 18 million hectares constitute non-cultivable or barren land, and 24 million hectares of land is under illegal occupation of China and Pakistan.

As per the recent report of the Forest Survey of India (FSI), the country has only 64.01 million hectares of actual forest cover with average productivity of Indian forests at 0.5 cubic metres per hectare which is way behind the world average of 2.1 cubic metres. According to the Survey of India and the National Remote Sensing Agency, the 19.52 per cent green cover, over 10 per

cent is represented by closed forests, 12 per cent form open forests, about 0.12 per cent consist of mangrove forest, and 1.10 per cent comprise of coffee plantations. It is estimated that at least 10 million hectares of degraded land need to be brought under forests per annum to maintain balance by the turn of the century.

But then, until adequate substitute for fuelwood, and for the multifarious uses of timber is put, as well as large-scale afforestation projects are implemented, the loss of forest cannot be halted. As such, in the field of forestry, the important task is to save existing forests, check the spread of wasteland, grow more trees in the already degraded areas and wherever it could be feasible. The stringent laws to save forests, implemented in the past, has been utterly



Social forestry assumes an important role in removing the regional imbalances which occur in vegetation. Since there is no chance of increasing area under forests, the only alternative is to bring as much private land under forests as may be possible. Hence the need to have a vigorous social forestry programme.

**Social forestry programmes :** As a source for meeting the daily needs of public requirements viz. timber, fuel, fodder, industrial and medicinal products, forests are quite significant. In view of the various developmental schemes, the pressure on forest resources to cope up with the increasing demand has become much more severe. As such, the gap between the demand and supply is on the increase. To bridge this gap to a certain extent, it is inevitable to raise forests on all available government or private land.

What is more, if we realise the importance of trees and start tending them properly we will be able to restrain the growth of desert which is the result of the neglect for trees. The Union Government is doing its best for creating awareness in the society for trees through social forestry programmes which have been quite successful as yet. But the speed with which we are taking up these is rather slow. In India we require to cut one crore fully grown trees daily and as such, it is necessary that we must replace them by new trees, to balance the cutting and save the environment from further deterioration. However, efforts made at present to plant and rear the trees would take long years before they are fully grown and become available for cutting.

It is also that in the forest land, afforestation experience to produce fully grown trees is rather dismal. If they are looked after well and protected all along they take 40 to 50 years before becoming fully grown and as such, are not helpful in the meantime for purposes of soil-erosion control, etc.

In such a situation, the challenge of social forestry schemes has great promise for reversing

the trend of deteriorating land productivity and shrinking fuelwood, timber and paper production of the country.

Despite rapid advancement in various parts of our economy, problems persist particularly in the rural communities. Population pressure has been continuously rising which has led to the scale deterioration of the countryside resulting in acute shortage of fuel, fodder, timber and huge amount of unemployment and underemployment. The one and the only remedy for this is to increase the forest cover by planting evergreen trees on vacant land through social forestry programmes in the centre of human habitation for the benefit of the common man. Forest raw materials are thus created on every bit of barren land, road-sides, river-banks, railway track-sides and other barren lands.

Today, India's villages present a very pathetic look. Since vegetation has been destroyed over the past several years, there is an absence of various products. Social forestry, a labour-intensive work, would also provide gainful employment and thus increase the purchasing power of the rural people. It is, therefore, necessary during the Ninth plan period, social forestry programmes on uncultivated land are to be carried out with full vigour with the help of Central Governments, voluntary agencies and forest workers. There is also need for bringing about a holistic integration of forestry, agriculture and husbandry. As such, it is necessary to launch massive programmes throughout the country taking in view the important aspects of production and environment.

The forest activities are managed by the Forest Department under the various state schemes. Social forestry, which was under the earlier National Rural Employment Programme is now merged in the Integrated Rural Development Programme which is being implemented through the District Rural Development Agencies. The programme of social forestry under the

planned by the Rural Development Department, State Governments.

Time has now come when the social forestry programme should become the programme of the people, by the people and for the welfare of the people in the rural areas. Problems of population and water pollution are now threatening us. Tree plantation can be made on the individual lands by growing fruit giving trees like mango, jamruth, guava, coconut, jack, etc., which will fetch some income. The younger generation in the rural areas requires extension education for plantation and preservation of fruit yielding trees. The general objectives of this training programme should be to impart knowledge of the forest management, understanding the role of various agencies, grassland and pasture development.

In fact, the forestry sector cannot be viewed in isolation from other sectors. The example of China and Southern Sweden indicates that increase in productivity of agricultural sector acts as a catalyst to the development of forests. In India also the increase in produce of the agricultural sector can provide the necessary incentive for development of farm forestry which is an important segment of social forestry. Very rightly therefore, the scheme of Jawahar Panchayat Yojana launched in 1989 gives preference to social forestry works.

**Objectives, success and failure:** It may be recalled that the National Commission on Agriculture (1978) spelt out the objectives of social forestry as (a) fuelwood supply to replace砍柴 (b) small timber supply, (c) fodder supply, (d) protection of agricultural fields against winds, and (e) recreational needs. Its main components would be (i) farm forestry, (ii) rural forestry and (iii) urban forestry.

Thus, social forestry provides fuel, fodder, small timber and other minor products which are essential for the community. But then, all the savings about its viability need to be removed



because it is particularly for this reason why it has not made much progress so far. The major shortcomings are that (i) it has subverted the richer farmers, (ii) it has not produced wide-ranging social and environmental benefits, and (iii) in some cases it has worsened the position of the poor.

It is interesting to note that the main success of social forestry in Gujarat, Uttar Pradesh, Haryana and Punjab was because of the response of medium farmers with more than 2 hectares and less than 4 hectares, and large farmers with more 4 hectares, coupled with the rising price of wood. Since tree-planting can be an attractive financial proposition where there is a market for wood, the benefits from the programme have generally been appropriated by bigger farmers. The failure of social forestry to fulfil the basic needs of the poor stems from instances like big farmers growing eucalyptus instead of the traditional ragi, thereby making less food available locally, pushing up food prices and the agricultural workers losing their jobs as eucalyptus requires less care. As such, new schemes need to be evolved to take care of the problems of the poor and a social benefit them most.

**Cost-benefit analysis:** The social forestry programmes should aim at not only making good the loss of the natural forest areas but also at increasing the relative share of the forest in the total land use stream. While some green is and

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have appeared on the country's map, with social forestry making its mark on the land which was hitherto barren, the new scenario has brought in a somewhat complex element also. On the other hand, the large forest tracts are being invaded which is endangering the green cover, on the other, there is social forestry claiming a larger slice from the cultivable land with high production potential. In such a situation, social forestry has a social opportunity cost for the community. It is therefore, necessary to undertake cost-benefit analysis of the programme wherever it is launched.

The private sector should be invited more closely and deeply in social forestry programmes. It is necessary to go beyond fiscal devices which, though important, cannot by themselves induce the private sector to invest in plantations on the scale required. It is necessary to lease out large tracts of land along the barren coastal areas and other wastelands in the country. The produce from these lands must obviously belong to the company which holds the lease. Such an incentive is far more likely to succeed than a few concessions which may only lead to fiddling of books and token investments.

In any case, financial cost-benefit analysis may not reflect the ecological and employment improvement benefits which may outweigh unfavourable cost-benefit ratios. For instance, the National Commission on Agriculture had recommended reclamation and development of wastelands disregarding unfavourable cost-benefit ratio. Hence, broader parameters for measuring cost-effectiveness need to be devised and a time horizon of 10-20 years be taken for such an analysis.

Indeed, the future scenario calls for effective steps towards social forestry so that loss of soil due to water and erosion is halted for protecting land. We need to achieve maximisation of the biomass on our limited land resources so as to be shared by all concerned in the community. The present efforts in this direction are just not

adequate to meet the actual requirements in times to come.

**Present availability and estimated requirement :** Presently, the per capita availability of the forest area in the country is only 671 square metres as against the estimated requirement of 1,605 square metres. As such, it has to be increased by 2.39 times at least. The National Commission on Agriculture had estimated that 40 million hectares will have to be brought under wood production by 2000 A.D for various purposes including fuel, and 10 million hectares each for production of crops and fodder. To this, we have to add the additional area which may have to be diverted for non-agricultural use, particularly for urbanisation by 2000 A.D.

Social forestry programmes also undertake the development of dairy industry which provides one of the highest employment. Also, rearing of silk worms and making silk cloth from raw silk is highly employment-generating. Social forestry also assists the small-scale and cottage industries like soap-making, small-scale paper-pulp factories, furniture industry and oil extraction which help the people to find work near the place of their habitation.

**Conclusion :** To conclude, our preoccupation with plantations under Vanamahotsav for the first four decades or so has made us overlook the urgent need for the amelioration of some 90 million hectares of wasteland not covered under the social forestry schemes. One can hope that villagers are now willing to control grazing and stall feeding their animals on hand-cut grasses as soon as they realise that protected pastures yield six to eight times the amount of fodder that they can produce under conditions of free grazing. Educating the villagers and laying out demonstrations plots must, therefore, form an important part of any strategy to rehabilitate the denuded lands. The 1988 Forest Policy needs to be amended substantially to give a boost to Forestry programmes. ■■

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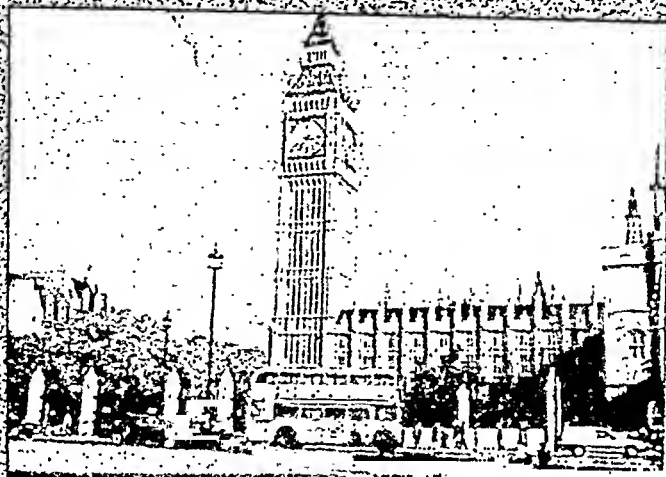
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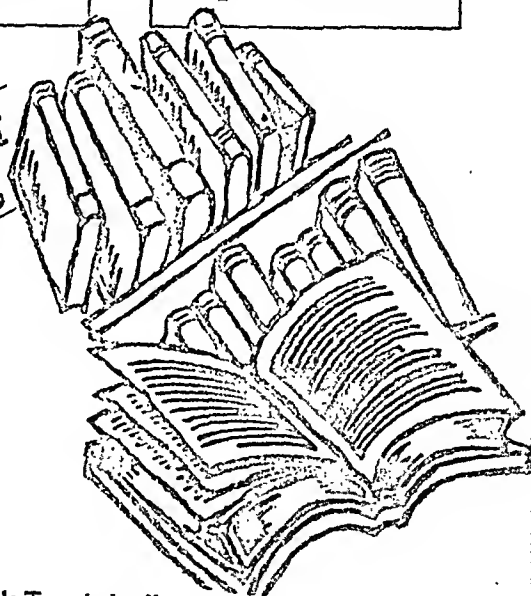
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# ISSUES IN FOCUS

## Operation Desert Fox US-Iraq hostilities worsen

On the night of December 16, the United States supported by Britain launched Operation Desert Fox which targeted the air defence missiles and other military installations of Saddam Hussein's government. The US said that the objectives of the strike was to degrade Iraq's capability to develop or deliver weapons of mass destruction and to lessen the threat to Iraq's neighbours. The United Nations Special Commission on Iraq (UNSCOM) which has been mandated to unearth this arsenal and destroy it had received little cooperation from the Iraqis. UNSCOM was also mandated to monitor on a continuous basis all industrial units and military installations which can be conceivably be employed in connection with a chemical and biological weapons programme or to build or deploy missiles. When the Iraqi government declared that it will never allow UNSCOM to enter the country, it was virtually provoking the US and other western powers. The US had earlier warned Iraq that failure to cooperate with the UN weapons inspectors will invite swift response from the US. Despite the apparent success of the operation, there is the

realisation that the US cannot get rid of Saddam Hussein because every attack strengthens him politically. The air strikes were ordered by Clinton on the eve of the start of the impeachment proceedings in the House. At the end of it all it is the UN whose credibility has taken a severe blow.

Saddam Hussein is not yet cowed down by the US-UK air strikes on Baghdad. In an act of defiance which might invite further retaliation, it said it would not permit UN inspectors to return nor would it agree to the reconstitution of the UNSCOM. It demanded that the sanctions be lifted and defiantly declared that it would not tolerate the violation of its air space. The UN is also sharply divided on this issue. UN Secretary General Kofi Annan has accused the US of using the UNSCOM to eavesdrop on Iraqi security installations and gather intelligence for the US military to enable it to strike effectively. While the US and UK are in total agreement over the ways to subdue Saddam, China, France and Russia have disagreed. The US is openly assisting the opposition to the present government of Saddam Hussein in violation of international norms.

## Russia and Belarus Strategic unification

In a historic agreement, Russia and Belarus agreed to merge to form a single state. The move was not surprising since Moscow and Minsk had signed a 'Charter of Union' to provide a legal basis for such a unified state back in 1996. The proposal was shelved by a Kremlin, then too

preoccupied with its internal crisis. The charter signed in 1996 had laid down the framework for the abolition of customs, having a common visa, and sharing military airspace by stopped short of declaring a complete merger. The move at that time had opposition both in Russia and Belarus.

In Russia, the move to merge Belarus was viewed as a liability because of the poor economic condition of Belarus, while in Belarus pro nationalists were in no mood to be under Russian control again.

But now things have changed. Russia's efforts to rebuild the country's federal structure based on democratic principles has found several takers among the former Soviet republics. The newly

formed republics have found the harsh realities of a market-driven economy too exhausting and are eager to sail along with Russia. However a more immediate reason is the eastward expansion of the North Atlantic Treaty Organisation (NATO). NATO's move to include Poland, the Czech Republic and Hungary in its fold has alarmed Russia which feels that America is carefully using Russian weakness to expand its empire. ■

## China at 50

### Communist state with a capitalist face



On October 1, 1999, a grand parade at Tiananmen Square and functions all over the country marked the celebration of fifty years of existence of China as the People's Republic of China. It was on October 1, 1949 that Mao Zedong proclaimed the birth of the People's Republic of China after having defeated Chiang Kai-Shek who fled to Taiwan. A treaty of friendship and alliance was signed with the USSR in 1950. China followed the Soviet model of collectivisation. Tibet was annexed in 1951. China intervened militarily in the Korean War (1950-53) by supporting North Korea and then lent support to the Vietnamese in Indochina. Mao Zedong launched the 'Hundred Flowers' campaign in 1956 to overcome internal opposition and then the revolutionary 'Great Leap Forward' in 1958. In the sixties ties with the

Soviet Union soured and simultaneously the decline of the economy also began. The infamous 'Cultural Revolution' was launched in 1966. Mao reorganised and purged the party and order was restored by ruthless use of force against dissidents. China signed the first treaty with Japan in 1974. In 1973, Deng Xiaoping who assumed power pursued a policy of moderation. This moderate modernist policy was bitterly opposed to the radical movement led by Mao's wife Jiang Qing and the 'Shanghai Group' who took control of the party's politburo at the end of 1975. In 1976, following the death of Prime Minister Zhou Enlai, Hua Guofeng became prime minister and Deng Xiaoping was stripped of his functions.

Mao's death in 1976 resulted in the arrest of the radicals known as the 'Gang of Four' by Hu Guofeng. In 1978 Deng Xiaoping was rehabilitated and Mao's ideas were for the first time questioned. Deng Xiaoping's visit to the United States in 1979 was the start of a radical change in Chinese foreign policy. Along with change in foreign policy, there was a perceptible change in economic policy as well. Priority was accorded to economic development, with more private enterprise being allowed. In 1984, US President Ronald Reagan visited China in April 1984 and signed an agreement on nuclear cooperation. In the same year in September, China and Britain signed an accord to ensure the smooth handover of Hong Kong in 1997. Queen Elizabeth visited China in 1986. Deng Xiaoping formally 'retired' in 1987 handing over



President Jiang (left) with Premier Zhu Rongji

the reins to his successor Zhao Ziyang.

In 1989, China's image took a heavy beating when troops fired indiscriminately at students protesting for more democracy in the famous Tiananmen Square. Thousands were killed in an orgy of gunfire. The widespread foreign outrage at the massacre severely hit China's diplomatic and trade relations. After the Tiananmen Square incident, China has moved cautiously towards a more open society with more emphasis on eco-

nomic, rather than political freedom.

During the last decade, the policy of more economic freedom without political freedom seems to have paid off. Annual growth rate averages around 9%. It has weathered the recent Asian financial crisis without devaluing its currency. In 1997, its GDP reached \$1,055 billion. There were also giant advances in adult literacy (87%) and average life expectancy (80 years). Today China is going full steam with economic reforms, privatisation and globalisation. Its political elite however continues to have a firm grip on the power structure. But foreign investors are least bothered about political freedom as long as the market is lucrative. China has rolled out a red carpet welcome to foreign investors who have responded admirably. It still faces international wrath on human rights violations, its control of Tibet and the lack of democracy. But the Chinese leadership is fully aware of the challenges ahead and hopes to tackle them with a mixture of economic freedom and political control.

## China Amendment in the Constitution

The Preamble to the 1982 Chinese Constitution is on the anvil for amendment. It comes two years after paramount leader Deng Xiaoping's death and 18 months after this development was suggested at the 15th Congress of the Chinese Communist Party in 1997. The preamble is to be amended when the National People's Congress (NPC) meets in early March. Six Constitutional changes are in the offing, most of them in the reformist direction which Deng advocated.

However it would be a fallacy to think that China has transformed into a capitalist country. NPC Chairman and former Prime Minister Li Peng stressed in a recent speech of the NPC standing committee which approved the changes, that he believes that the changes were going to have a profound effect on the development of the socialist market economy, the construction of socialist democracy and the overall socialist enterprise of China. One constitutional change, also in the Preamble,

replaces the phrase "China is currently in the primary stage of Socialism" with "China will be in the primary stage of Socialism over a long period of time". This has been done to reassure private enterprise and foreign that China will not quickly become an economy which is wholly state-owned.

In fact, the new articles Six and Eleven of the constitution clearly illustrate that China is not ideologically switching to capitalism as completely as many foreigners assume. Article Six will now read, "In the primary stage of capitalism, the country should uphold the basic economic system in which public ownership is dominant and others forms of ownership develop side by side. However it is in article eleven that private enterprise are finally acknowledged. It expresses that the non-public sector including self employed and private businesses (within the domain stipulated below) are important component of the country Socialist market economy.

## Launch of Euro

### New economic era dawns in Europe

For the first time since the collapse of the Roman Empire, the European nations are united under a single 'Euro' though some nations are yet to take part in the Eurozone. Now the currency has completed one full year in the world financial markets. The article takes analyses the progress of the Euro.

**All about Euro :** Euro is a single new currency issued by most of the Western European nations. It will gradually replace national currencies like the German Mark, the French Franc and the Italian Lira. Notes and coins of Euro of Euro money will begin to circulate after January 2002. From January 1, 1999 to January 1, 2002 Euro will be only a legal currency to be used in financial markets and other business related activities. But cash transactions will be in respective national currencies. After July 2002, the Euro will be the only legal tender among member countries. Presently, 11 countries out of 15 countries of the European Union (EU) have joined. Britain, Denmark and Sweden have not joined so far and Greece failed to meet the necessary criteria. One of the basic criteria to join in Eurozone for the EU member countries is to contain the budget deficit of 3% or less.

*The potential benefits of Euro money are*

- (i) elimination of foreign exchange charges for cross-border transactions
- (ii) savings for exporters are substantial-bigger savings are expected from lower prices
- (iii) to turn Europe into a more efficient single market base, so that its companies can take on US firms worldwide

A European Central Bank (ECB) based in Frankfurt, Germany, controls the monetary policy. The ECB's first year priority was to keep interest rates high enough to control inflation rate and to provide a stable and strong base for Euro to perform. The Euro was exchanged for 1.17 US dollars. The projected Euro coin will weigh 7.5 gram,

either white or yellow, 23.35 mm in diameter, and 2.12 mm thick.

**Implications for India :** India is the single largest trading partner of the European Union and now the Euroland. If a man visits 15 countries in the EU, he has to spend half of his currency on currency conversion fees and disjointed European markets are no more a problem. For Indian exporters, Eurozone has turned a wide single market to bargain sales.

Euro has important implications for India. Many Indian corporates export their products and access cheaper funds from Europe. The ministries of Commerce and Finance reacted favourably to the RBI document on 'EMU, Euro and India'. This document was circulated among FICCI, CII and ASSOCHAM and now a broad-based action plan has been taken up. It is an obvious fact that exchange rate risks are on the board because India's exports and imports are dominated in US dollars.

The RBI report indicated that the shift to Euro will result in losses for foreign exchange dealers of at least 20%. Banks might lose 5 to 10% of their annual income from forex dealings. However, Indian corporates are likely to increase their Euro dominated borrowings. If the Euro depreciates, India's debt burden will increase because it depends upon the exchange rate of the dollar in comparison to Euro. But a weaker Euro would lower the debt burden. India's export to the US fell by 5% in the year 1999, whereas overall export increased by 8%.

**One year record :** The Euro was launched with a bang amidst champagne and music. After 365 days in the financial market, all the hopes and expectations are proved futile. After an initial ride, Euro began to tumble heavily. Euro failed to replace the dollar in external transactions because it is yet to be established in the market. The weak Euro lost the mad race to dollars floating out

the US. With an increase of 27% in domestic production in the year 1998, it failed to compete with the booming US economy. During 1999, the Eurozone growth was just about 2%. Side by side, industrial growth, investment and consumption began to decline and employment remained almost static. Export and import growth also declined.

In the first year, the Euro slumped by 15%. The reduced rate of interest later on by the US prompted the migration of funds from Europe to the US in quest of better returns. This resulted in more demand for dollar and weakening of Euro. Other most important factor was that the European countries were not fully prepared to sacrifice

their domestic interests to uphold the Euro promises. Italy bargained for a longer fiscal deficit and more surprisingly, Europe witnessed hostile takeovers during the year 1999 which decimated the stockmarkets.

The 10.9% unemployment in 1999 was expected to drop to 9.3% during 2000 with a GDP rise of about 3%. However, in Germany, Italy and France, the unemployment was more than 10%. Again, inflation in all the European countries was hovering between 1 to 2% per year. If the Eurozone does not increase the rate of interest, Europe may not be an attractive market to issue bonds for the companies outside Europe. ■

## Brazil

### Currency devaluation hits global economy

The global financial markets was caught navares at the news of Brazil's devaluation of its currency Real. Brazil devalued its currency by 27 per cent when its third biggest state, Minas Gerais, announced a 90-day moratorium on the repayment of its 13.9 billion debt to the central government. The news of devaluation came in the wake of the resignation of the president of Brazil's Central Bank, Gustavo Franco.

The news surprised the world primarily because of its suddenness. The United States and the IMF were agitated over the fact that Brazil devalued its currency without charting out a pragmatic plan to improve its ailing economy. However there are some others who opined that it would correct Brazil's overpriced stock markets.

**International impact :** The news of the devaluation gave a fresh lease of life to the 18-month recession which was showing signs of dying down. Brazil, which is the eighth largest economy of the world and accounts for more than 40 per cent of the total GDP of the entire Latin America, has compounded the problem of U.S.A. which was already worried about the adverse economic conditions in South Asia and Japan as they were important markets for U.S. products. Not only

the U.S. but a major chunk of the global economy would be affected by the steep devaluation of the Brazilian currency as it exercises a sizeable influence in the global economy and is a trading partner with many of the nations of the world. The fact that the confidence on the Brazilian economy has plummeted globally following the devaluation of its currency, was embodied by the emerging bearish trend in the stock markets following the recession. The Dow Jones Industrial Average lost more than 200 points following the devaluation. However, at present it is too early to give a comprehensive analysis of the impact of Brazil's devaluation of currency on an international level and many optimists are of the opinion that it would not lead to a severe global economic crisis. Much would depend on the reaction of the U.S.A. and other global players to the developments.

**Impact on India :** The general consensus among experts is that Indian economy would not be significantly affected by the Brazil's sharp devaluation of currency as Latin America accounts for only 1.5 per cent of India's total trade. But the devaluation would make Brazil's exports more competitive in the world market and India may receive a setback in its own exports. Exports of Brazil primarily consist of coffee, pepper, cash

oils etc which are also major export items of India in the world market. In fact, Brazil is only second to India in terms of pepper production in the world. Brazil is also the largest producer of coffee in the

world and thus this devaluation may adversely affect India's coffee exports to the world market by making Indian coffee economically less viable than the Brazilian coffee ■

## Jordan

### King Hussein's demise signals end of an era

The passing away of King Hussein of Jordan marks the end of an era in West Asia's turbulent politics. Hussein was for years, a key figure in maintaining peace and stability in the region. He died following complications from cancer. He is by and large remembered for his visionary and pivotal role in the launching and carrying forward of the West Asia peace process and all round development of Jordan. Hussein was the country's supreme military commander. His 1994 peace treaty with Israel was a bold and courageous move. He also played a pivotal role in the Wye River Peace between Israel and the Palestinians, helping to mediate last year's talks at a time when he was already very ill. He has faced repeated assassination attempts but that didn't deter him from taking courageous steps that would lead to the establishment of a permanent peace in the region. His son, 37-year-old Crown Prince was proclaimed King in his place.

Under the 63-year-old king's enlightened leadership the predominantly Muslim monarchy grew from a fringe state with little standing in the international arena to a kingdom widely respected for its moderating influence in the oil-rich region.

Intending in 1952 at the age of 17, a kingdom, desperately trying to overcome internal strife, Hussein, set it during his years at the helm on to the path of progress and led the turbulent region to the threshold of peace by signing a peace deal with Israel.

After a bitter war with Tel Aviv in 1967 when Israel wrested the West Bank from Jordan's hands, Hussein remained officially at war with the Jewish state for over four decades before the shifting sands of West Asian politics led him to make peace

The 1994 treaty served as a beacon to all other Arab states at war with the Zionist state, hitherto treated as a pariah state, paving way for peace talks between Tel Aviv and the then outlawed Palestinian Liberation Organisation (PLO). Hussein, the longest serving ruler in the world, stood loyally by the US till the 1990 Gulf War when he sided with Iraq. Quick disillusionment with Baghdad saw Hussein switching back to the US camp, this time for keeps.

During the 1990-91 Gulf crisis, he made vigorous efforts to peacefully effect an Iraqi withdrawal and restore Kuwait's sovereignty. The tough looking soft spoken Hussein persevered in pursuit of genuine Arab reconciliation ■

### Landmine treaty comes into force

An international treaty to ban land mines which kill and maim some 25,000 people every year come into force on March 1. The treaty, concluded in Ottawa in 1997, has been signed by 133 countries and ratified by 64 of them. About 12 countries have destroyed their stocks of land mines. Major users and producers including the United States, Russia and China have refused to join in. The US, for instance, contends that deactivating its minefields along the Korean border would endanger the lives of American personnel. Even with the treaty coming into effect, it will still take decades to clear the tens of millions of mines scattered in more than 60 countries. But the fact that the treaty has come into force is a cause for optimism. Landmines render large tracts of agricultural land unfit for cultivation, and grazing grounds poison fields for animals. Cambodia, Afghanistan, Angola, Mozambique, Bosnia are some of the countries which have seen many casualties due to these landmines.

## Malaysia

### Ibrahim Anwar sentenced

Large scale violence erupted in Malaysia as ousted Deputy Prime Minister Anwar Ibrahim sentenced to six years in prison for abuse of authority while in power. His offence, as judicially determined was that he misused his powers as Deputy Prime Minister in 1977 to scuttle a police investigation into accusations of personal misconduct against him. It was a judgement with a collateral-legal impact of disqualifying Ibrahim from contending in the next parliamentary election. On April 1, Anwar Ibrahim was found guilty of four separate but inter-related counts of abuse of authority. In the judgement he was sentenced to prison to serve a six year concurrent conviction.

Mr. Anwar's lawyers described the verdict harsh and unprecedented in the annals of independent Malaysia for alleged offences of similar magnitude. Such remarks sparked a vigorous series of violent demonstrations by his pro-reform supporters at several places in downtown Kuala Lumpur. The violence was gradually contained by security forces but Anwar's political supporters said that they would take his case to the people's court.

Within South East Asia the Malaysian verdict has saddened the Philippines President Mr. Joseph Estrada who described it as a very unfortunate outcome. Mr. Estrada opined that Mr. Ibrahim

would eventually be vindicated if he were really innocent. Some of Malaysia's other neighbours made no instant remarks as it is largely regarded as Malaysia's internal matter and which still had the full legal course to go. At the international level, the initial indication was that the US Government's sympathy for Mr. Anwar's calls for political "reformation" may stay firm.

Dr. Mahatir Mohammad, the present Prime Minister of Malaysia remained silent over the judgement but the present Deputy Prime Minister, Mr. Abdullah Ahmed Badawi, appealed for calm. He said that it was a court decision that Malaysia would have to accept. He opined that there was no need for any reaction that could cause tension.

Amidst this all, Mr Anwar's lawyers vowed to go to the court of appeal praying for two separate remedies—a stay of the conviction as well as the consequential bail for Mr. Anwar as a first step and a subsequent revocation of the sentence itself. The question now in Malaysian politics now is whether Anwar, who donned the mantle of the nation's political conscience-keeper after his dismissal as Deputy Prime Minister in September 1998, is really a revolutionary leader or whether it is merely a label thrust upon him by his supporters. ■

## China and Pakistan

### Li Peng's visit boosts defence ties

The four-day official visit to Pakistan by Li Peng, the Chairman of the Standing Committee of China's National People Congress (NPC) was considered politically significant as he is a top-ranking leader in China and very influential as well. He is also the senior-most Chinese leader to visit Pakistan after the nuclear tests conducted by Islamabad in May 1998. During his visit, Li Peng held talks with President Rafiq Tarar and Nawaz

Sharif covering a wide spectrum of regional as well as international issues. Li Peng described Pakistan and China as 'all weather friends' and China, he said viewed its ties with Pakistan as a permanent feature of its foreign policy. China has often in the past played a key role in modernising Pakistan's defence and has supplied arms and technology to Islamabad. Until 1990, China had provided military goods and technol-



ogy to Pakistan free of cost. The construction of the Karakoram highway is another example of Sino-Pak cooperation. Li Peng expressed China's gratitude for Islamabad's support on human rights issues, Tibet and China. Li Peng expressed

the hope that the regional groupings like SAARC would play a vital role in ensuring peace and stability in the region. Li Peng was conferred with the Nishan-e-Pakistan, the country's highest civilian award.

## Indonesia

### Wahid elected President, Megawati is VP

In an anti-climax to the Indonesian Presidential elections, Mr Abdurrahman Wahid, an Islamist scholar was sworn in as Indonesia's new President on October 20 after he defeated the popular leader of the masses, Ms Megawati Sukarnoputri. Wahid has enormous standing and his public appearances can command vast crowds. He is respected as a moderate face by Muslims and non-Muslims alike. The election of 59-year-old Wahid by the People's Consultative Assembly (MPR) stunned Megawati's supporters and provoked a violent reaction from them. Mr Wahid who is fit of health however described Megawati as his political 'sister' and praised her immense contribution

to the revival of democracy in the country. To the credit, Megawati accepted his victory graciously and offered her support. Mr B.J. Habibie, the former President had earlier opted out of the Presidential race. Wahid takes charge at a time when Indonesia is racked by separatist conflict, economic crisis and corruption.

Meanwhile, Ms Megawati Sukarnoputri who was the favourite to win the presidential race became the new Vice-President of Indonesia winning a direct contest with Mr Hamzah Haz. She pledged to work with Mr Wahid to improve the quality of life of Indonesians and uphold the status of the military as the country's guardian.

## Israel

### Labour returns to power

Labour leader Ehud Barak led his party to a remarkable victory in the country's general election and replaces Benjamin Netanyahu as Prime Minister. The victory of Ehud Barak is not just a simple defeat for Netanyahu but is a rejection of his right-wing politics. Mr Netanyahu's Likud Party has been pushed to a distinct second in Israel's political landscape. Netanyahu's projection of the likely Palestinian terror as a vote-catching mechanism has had few takers and the Israelis seem to have seen through the game. Netanyahu had employed this tactic successfully in 1996 when he defeated Labour leader Shimon Peres by a narrow margin, portraying the Labour's peace policy as a catalyst for Palestinian terror. This time the voters have

settled for the comparatively clean and moderate image of Ehud Barak. The election was thus more of a personality clash than of issues.

The big winners in the parliamentary elections have been the five parties in the centre of the political spectrum which have doubled their share of 11 seats in the dissolved House. The new prime minister faces an uphill task in forming a government and taking off from where Netanyahu left. His moderate image will be severely tested if the Palestinian issue crops up again and the terrorist attacks continue. The West Asian peace process will have to be revived and other issues like unemployment, national security etc will have to be carefully tackled.

## Pakistan

### Ghauri-II test fired

On 14th April i.e just two days after India fired its advanced range Agni-II ballistic missile Pakistan responded by test firing its Ghauri-II missile having a maximum range of 1500 kms capable of carrying nuclear warheads.

An official announcement said that the advanced Hart-V(Ghauri-II) missile, test fired from Jogan, 40 kms off the Punjab town of Jhelum, hit the intended target near the coastal town of

Jiwani in Baluchistan after eight minutes.

This was the second test of the Ghauri which has a range of 1500 km and can be tipped with any kind of warhead. Media reports quoting official sources had earlier said that Pakistan would be test firing a more advanced version of the Ghauri missile with a range of more than 2,000 kms to give a matching response to India's Agni-II missile.

## Algeria

### Army backed candidate is the new President-elect

Abdelaziz Bouteflika, a candidate backed by the Army, was declared the winner of a presidential election in Algeria that was marred by allegations of excessive vote rigging.

According to the official announcement, Bouteflika, 62, a veteran of governments that militated in the 1960s and the 1970s, won nearly 60 per cent of the votes. His opponents however alleged vote rigging saying that the inflated figure of 60 per cent is an acute disappointment for Algerians who had hoped for civilian rule,

free from the control of the army. In the past year, popular sentiment has been shifting sharply against the Islamic guerrillas, and with the Army gaining an upper hand in the fight against Islamic terrorism, the talk of return to moderation was in the air. With the win of Bouteflika, Algeria's citizens are fearing that public opinion would begin to shift to the Islamic militants. The high turnout surprised many. The low turnout for Bouteflika in eastern Algeria was offset to a large extent by more than 70 per cent turnout in some towns and cities.

## Fiji

### Labour Party comes to power

The Fijian electorate voted an Indian-dominated Fiji Labour Party to power in the recent elections. Fiji Labour Party leader Mahendra Chaudhary is all set to become the new Prime Minister of Fiji. What is significant about Mahendra Chaudhary is that he is an ethnic Indian. Indians have a long sociopolitical record in Fiji. Indians went to Fiji as indentured labourers for sugar plantations, but with the course of time they rose to a position of social eminence and began to hold considerable political influence. The ethnic Indians, who comprise a significant section of the population, have contributed greatly to the

economy of Fiji especially to the sugar industry which is one of the pivotal economic pillars of the country. During the racist regime of Sitiveni Rabuka, the ethnic Indians had to undergo a lot of ignominy who tried his utmost to relegate the ethnic Indians as second class citizens.

Rabuka who came to power through a military coup in 1987 was defeated in what is the first truly democratic elections in the last 12 years of Fiji. Of the 11 parliamentary seats, Rabuka's SVT has won only 6 seats, which amply reflects the revulsion against the blatantly racist regime. On the other hand, the victory of Mr

Mahendra Choudhary's party is a result of his sincere efforts to broaden its base among the electorate by assimilating the multiracial fabric of the

country. Under his leadership, Fiji may herald a new era of prosperity and peace bereft of ethnic tensions.

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## Nepal

### Nepali Congress records impressive victory

The impressive victory of the Nepali Congress in the recent general elections held in Nepal has brought about the possibility of a stability in a country plagued by periods of political uncertainty. The new Prime Minister, Krishna Prasad Bhattarai has promised to change the face of Nepal in the next three years and one can only hope that this doesn't turn out to be an empty boast. It will be Bhattarai's second time as Nepali premier, after he led the country in 1990 when the Himalayan kingdom first embraced democracy after three decades of absolute rule by the monarchy. Bhattarai was unanimously chosen as the parliamentary leader of the Nepali Congress (NC) which defied predictions to win an outright majority in the country's recent two-phase elections. Nepal was witness to the spectacle of being governed by six different governments within a five-year period. This has affected the economic development

of the state and has in turn, invited cynicism. The alarmingly short tenure of the governments in recent past was due to the internal conflict vested interests in various alliances which was mainly the product of political convenience. These alliances were characterised by constant acrimony.

Now, with the Nepali Congress having a comfortable majority, better Indo-Nepal ties can also be expected. Activating the Mahakali Treaty, checking the escalation of ISI activities in Nepal are some of the areas in which India needs Nepali cooperation. The political marginalisation of extremist outfits in the recent elections also embodies the fact that the Nepalese electorate has shunned sectarian politics and is willing to chart out a new and promising future for Nepal built on stability and mutual trust. The signs augur well for this Himalayan kingdom.

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## Germany

### A new President is elected

Johannes Rau, a veteran politician of the ruling Social Democratic Party has been elected the eighth President of Germany in the post-war period. He was unanimously chosen by members of the lower house of the German Parliament known as Bundestag and representatives chosen by state parliaments. He was the consensus choice of the ruling Social Democrats and the Greens; the junior coalition party of the ruling Social Democrats. The President of Germany is only a ceremonial head and the real powers are held by the Chancellor. However, the President has also

to face the flak for the failures and shortcomings of the economy. Gerard Schroeder (the present Chancellor) who came to power through September elections has many problems to contend with. Critics have lambasted his handling of the economy and Germany's toeing of the American line in the Kosovo war. However, Johannes is not a controversial man and this age is likely to help the Chancellor. The Greens and the Social Democrats are at loggerheads over German involvement in the NATO war in Yugoslavia.

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**Berlin is now officially the functioning capital of Germany :** On August 25, history was made in Germany as the Chancellor, Mr. Gerhard Schröder, spent his first full day in the Chancellery office marking the resumption of the government in Berlin after 54 years. Key German ministries have already shifted to the city, which was Adolf Hitler's wartime capital. Germany is going

all out to transform the new capital into one of the most elegant capitals of Europe. Berlin carries with it the most poignant and powerful images of World War II. The German government has spent nearly \$ 13 billion on improving Berlin to make it one of Europe's most beautiful capitals. Germany itself has emerged as a great economic powerhouse of Europe.

## Yugoslavia

### Milosevic accepts peace proposal

After prolonged and relentless bombing by NATO, Yugoslav President Slobodan Milosevic is forced to accept a peace plan put forward by a Group of Eight. The change of heart by Milosevic is seen to be the result of the pressure exerted by Russia. Under the agreement, peace-keeping forces would be deployed in Kosovo under a UN mandate, but would have a significant presence of troops from NATO countries.

The plan envisages Kosovo becoming an international protectorate nominally under UN supervision until democratic institutions are created. The Organisation of Security and Cooperation in Europe is likely to play a major role in monitoring the agreement. The new agreement guarantees the territorial integrity of Yugoslavia, and rules out Kosovo independence.

#### Milosevic formally indicted

The ongoing Yugoslav crisis took a new twist when the Yugoslav President, Mr Slobodan

Milosevic was formally indicted for war crimes by the International War Crimes Tribunal at The Hague. This is the first time that a head of state will be brought before an international tribunal. The indictment casts a shadow over the diplomatic peace efforts being carried on parallel with the military action. Britain is said to have played a key role in providing material for an indictment. Two Bosnian Serb leaders, Mr Radovan Karadzic and Gen. Ratko Mladic have earlier been indicted by the tribunal, but have yet to be brought before it. There is no way of arresting the two, without provoking seriously disrupting the peace process. Similarly, it would be difficult to arrest Milosevic, unless he is overthrown in a political uprising in Yugoslavia and a new government hands him over to the tribunal. These possibilities look extremely unlikely at present. All that the tribunal would have achieved after the indictment is that the peace process would have been irreversibly put in cold storage.

## G-8 Summit

### Proposes to write off Third World debt

The world's eight richest economies jointly decided in the recently held G-8 summit at Cologne, Germany, to waive off more than half of the Third World's debt. This gesture by the members of the G-8 Summit, would give some succor to many of the Third World economies who were rapidly collapsing due to the crushing burden of

debt. According to the 'Cologne debt initiative' of the \$ 1,30,000 million debt, \$70,000 million would be waived off.

The G-8 leaders also agreed to strengthen the world's financial system. The leaders also expressed confidence about the recovery of the global economy. The

point communique on 'strengthening the international financial architecture' so as tide over the crises that plagued Asian economies in the recent past. However, the jubilee 2000- a cluster of anti debt campaign group becomes a spoilsport to the overall success of the summit. The protestors expressed their dissatisfaction with the humane gesture. They argued that the poor countries would still give precedence to the debt service than other priority areas like health and education.

The G-8 summit at Cologne was also characterised by propaganda blitz of both India and Pakistan on the Kargil issue. Both tried to

direct the global opinion on this thorny issue towards their favour and in that endeavour they tried their best to influence the G-8 nations. The G-8 leaders on their part had also discussed the line of control (LOC) issue between India and Pakistan in detail and urged the two warring neighbours to stop fighting and resume talks to end the conflict. The G-8 leaders also blamed the infiltrators who violated the sacrosanct line of control and blamed them as being responsible for the conflict. The G-8 nations' view would very likely marginalise Pakistan in the international politics in the coming months.

## South Africa

### Change of guard spells fresh challenges

The recent election of Thabo Mbeki of the African National Congress (ANC) by an overwhelming margin as the President of South Africa marks a watershed in the country's post-apartheid politics. The results indicate that the ANC still continues to reflect the hopes and aspirations of the majority of South Africans and Nelson Mandela, the Father of the new South Africa, enjoys an exalted and venerated status. Mandela's position in South Africa has been likened to that of Gandhi and Nehru in post-Independence India and his towering personality continues to provide inspiration to his countrymen. Thabo Mbeki is Mandela's chosen protégé and his chosen heir. Mbeki is an experienced politician and administrator. He has the requisite ability, capacity, experience and the political skill needed to manage the difficult situation that he inherits.

Even during Mandela's presidency the economy had started to show unmistakable signs of strain. The problems of unemployment, growing crime and corruption, poverty, disparities, and provision of food, health and shelter for the common man were beginning to pose serious challenges to Mandela's government. Mbeki's biggest challenge in his coming years will be to keep a lid

on the many pressing social and economic problems that confront South Africa.

The South African economy, even today, dominated and controlled by a relatively small number of White families who are apparently unwilling to loosen their grip. The ANC in the name of 'harmony' and 'reconciliation' and perhaps fear of unmanageable consequences, is unable to hasten the pace of meaningful reforms and undertake necessary legislative measures to provide the way for a more egalitarian society. The Government's ability to carry out structural changes in the economy will largely depend upon how long the majority population are willing to accept a life of deprivation and struggle in the hope that the political will and ability to carry out the necessary reforms will manifest itself and give them new opportunities to ameliorate their lives.

Mbeki will have to take quick and possibly politically risky decisions as to whether he will begin the task of radically reforming the system or choose instead to make pragmatic compromises. As far as the majority community is concerned, Mbeki has only a limited time to deliver the goods. A failure will seriously erode ANC's credibility and powerbase. Mandela, because of his stature,

able to deep on hold the economic problems and maintain a balance. But for Mbeki to succeed he will not only need backing of his party cadre but also of the one third of the population, including the minorities, who did not vote for the ANC in the recent election. Mbeki is experienced in foreign affairs, having handled this area of responsibility on many occasions on behalf of Mandela. He is a good friend of India, and is unlikely to deviate from Mandela's and the South African foreign policy establishment's carefully balanced policy towards the Indian sub-continent. India for South Africa is not a priority area. South Africa still looks up on itself as primarily an African country with strong traditional links with Europe and the West.

The South African foreign policy establishment, not necessarily at the political level, is loath to identify itself with the Third World and being bracketed with the developing countries. It aspires to play an international an international role. It sees Mandela's legacy as giving it a moral stature and legitimacy in international affairs, at times beyond its strengths. While it currently chairs the Non

Aligned Movement, it is not at the core of the movement's traditional base. There are indications that South Africa may prefer not to subscribe to the idea of solidarity with NAM or its offshoots, including the G-77.

It attaches more significance to its membership of the Commonwealth and the United Nations, but is not always in tune with the other developing countries on main issues in these fora. South Africa's foreign policy, therefore, is oriented in a manner which would suggest that it may not be averse to deviating from some of the tried and tested positions of NAM, including on the core issues of universal disarmament, strategy for involvement and the structure of a new world order in which there is greater balance and equity. The "Strategic Partnership" agreement signed in 1997 between India and South Africa is an important milestone in diplomatic relations. It requires both the countries to adapt mutually beneficial positions on trade, commerce joint ventures, and technology, defence co-operation and other like avenues.

## Human Development Report Focus on human concerns

The tenth annual Human Development Report (HDR), released recently in Geneva, has tried to put human concerns at the centre of the globalisation debate. The report has called for stronger governance for offsetting the disparities spawned by globalisation. It states that 'global markets, global technology, global ideas and global solidarity can enrich the lives of people everywhere. The challenge is to ensure that the benefits are shared equitably and that this increasing interdependence works for people not just for profits. Though globalisation 'seeks to promote economic efficiency, generate growth and yield profits it misses out on the 'goals of equity, poverty eradication and enhanced human security'. The report recommends an agenda for action reforms

of global governance to ensure greater equity, new regional approaches to collective action and negotiation and national and local policies to create future opportunities in the global economy and translate them into local development and advance. Highlighting global issues such as the fight of the world.

This year's report was co-authored by the late Mahbubul Haq, former UNDP director and coordinator of HDR. Canada chaired the annual report for the sixth year running, followed by Norway, the US, Japan and Belgium. India had a 100% productivity at home of 70% and a productivity of 99% real GDP per capita of \$2,450, 100% productivity index of 100.

India moves up on rankings

## Transparency International's report on corruption

Transparency International's latest report on prevailing corruption in various countries says that Denmark was the least corrupt nation with a score of a perfect ten on a scale of 0-10. Denmark was followed by Finland and Sweden. India's score on the so-called 'corruption-perception index' was 2.9. India ranks 73 out of 99 nations surveyed. Pakistan was ranked 88. The survey has been carried out by a variety of sources such as the World Bank, International Monetary Fund and the Economist Intelligence Unit. China does not figure in the list because Transparency International had no access to any informed opinion there. For the first time, the Berlin-based organisation introduced a Bribe Payers Perception Index (BPP). The 19 exporting countries are ranked in terms of the degree to which the corporations of those countries are perceived to offer bribes to get jobs done. Based on this, Sweden emerged the cleanest while China was ranked 19th. Behind China were South Korea, Taiwan, Malaysia. The US ranking was 10. The study therefore unearthed the disquieting fact that companies of many leading exporting nations do not hesitate to resort to bribes to win lucrative contracts.

for the first time moved into 'medium development category', ranking 132 among 172 countries, which is an improvement of six points since the last assessment. Till last year, India was in the 'low development category' measured on the basis of achievements in terms of life expectancy, educational attainments and adjusted real income. The report also notes that India has joined the Asian tigers, linking into global markets, attracting foreign investments and taking advantage of technological advance. According to the report, India has a life expectancy at birth of 62.6, adult literacy rate of 53.5, real GDP per capita of PPP \$1,670, a life expectancy index of 0.63, a GDP

index of 0.447. India's human poverty index (HPI), a multidimensional measure of poverty, is 59 with 16.1% of people not expected to survive to age 40, 25% deprived of access to health services, 19% deprived of access to safe drinking water, 71% deprived of sanitation. The population of people living in India below income poverty line of \$21 a day is an alarming of 52.5%. The report states that in India the disaggregated HPI (Human Poverty Index) shows strong disparities in poverty between states. Human deprivation is highest in the states of Bihar in northeastern India, where the HPI is 54%. Kerala has an HPI of only 23%.

## The Balkan crisis

### Sarajevo Summit endorses stability pact

On July 30, leaders from some 40 countries endorsed a blueprint for bringing peace and prosperity to the troubled Balkans. Leaders from the US, the European Union and the Balkans agreed on a declaration pledging to promote political and economic development and to increase security in the region.

The leaders endorsed a stability pact, designed to bring the region closer to western norms and pledged to help the Balkans develop politically, democratically and economically. They

also appealed to the people of Yugoslavia to embrace democracy and work for regional reconciliation.

The US President, Mr Bill Clinton, offered a US aid package worth nearly \$700 million for post-war reconstruction in the Balkans. A major element of the aid programme was 'generous, immediate and unilateral' steps to expand exports from Balkan countries to the US.

*The highlights of the aid programme:*

- The US Overseas Private Investment Corp. will

create one or more private sector investment funds aimed at providing up to \$150 million to finance companies in the Balkans.

The US will also provide a \$200 million credit

line for business projects with significant participation from by US firms.

- The US will also provide \$16 million in technical assistance. ■

## World Population

### UN report warns of crisis

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The State of the World Population Report-1999, released recently has warned of serious economic and social crisis due to the unchecked boom in population especially in developing countries. The report says that the United Nations Population Fund (UNFPA) will observe October 12 as the day of the six billion\*.

#### The highlights of the report

- World population has doubled in the last four decades
- India would reach the one billion mark next year
- A billion people have been added to this planet in just 12 years
- World population is growing at 78 million a year, of which 95% growth is in developing countries.
- The good news is that annual rates of population growth have slowed down from 2.4 to 1.8% and should fall further.
- Family size is half of what it was in 1989.
- Annual absolute additions to population peaked in 1985-90 at 85 million.

- A billion people still live without basic necessities like clean drinking water, secure housing, basic education and health care.
- At least 350 million women in the world do not have the means or information to decide on the size and spacing of their families.
- Population growth had slowed or stopped in Europe, North America and Japan.
- The United States was the only industrial country where large population increases were still projected, largely as the result of immigration.
- The report has lamented the 'lack of political will' to population control in India
- It observes that most of the population growth was taking place in the world's poorest and least-prepared countries and the fastest growing regions were the Sub-Saharan Africa and parts of south Asia and western Asia
- The report says that international assistance for development in the world had fallen from a peak of around \$61 billion in 1992 to just over \$48 billion in 1997 ■

## China and Taiwan

### A war of nerves

The war of words between China and Taiwan has hotbed up with China threatening to use force to merge the island nation into the Chinese mainland. China regards Taiwan as a 'renegade' province even though it is a capitalist democracy, which has run its own affairs since 1949. Taiwanese President Lee's recent comments in an interview that Taiwan is a separate nation state and that it enjoys a 'State-to-State' relationship with

China angered the Chinese leadership to such an extent that it threatened to use neutron bombs to bring the province to its knees

But the matter is not merely of Sino-Taiwanese ties. Taiwan has the open support of the United States, which fully backs its strong democratic and capitalistic credentials. Although the US confirms to the 'One China' policy it is constitutionally



1979, to defend the country. In 1995, tensions reached a flashpoint when President Lee Teng-hui visited the US unofficially and China fired missiles around the waters of Taiwan. Any armed conflict with Taiwan by China would bring the US into the picture. Therefore any flare-up in Sino-Taiwanese ties is likely to have global repercussions.

While leaders in Taiwan maintain that reunification with the Chinese mainland is the ultimate goal, the people of Taiwan are not particularly enthused. Taiwan enjoys freedom of speech and expression coupled with prosperity. Unification with China would certainly mean loss of such fundamental freedoms that are part and parcel of a flourishing democracy.

On its part, China has of late hardened stance and is even resorting to subtle economic blackmail against the US for its support to Taiwanese independence. The US is wary of antagonising China for fear of losing its vast lucrative consumer market. But at the same time has been a traditional ally and friend of Taiwan is therefore caught in a Catch-22 situation and the moment is maintaining restraint in the face of extreme provocation by the Chinese. The only feasible solution to this problem would be maintenance of status quo and not resort to forced adoption of a conciliatory approach towards the issue of reunification instead of its present hostile stance.

## East Timor

### A decisive referendum for independence

East Timor was a Portuguese colony even years after Indonesia attained her independence from the Dutch. In 1974, Indonesian troops marched into East Timor and forcibly annexed it. But the merger was rejected by a majority of East Timorese population, primarily because a majority of the population of East Timor was Christian. Indonesia was a Muslim-majority country and therefore the religious divide was too sharp for easy reconciliation. The growing antagonistic sentiment in East Timor towards Indonesia culminated in the growth of a separatist movement, which for 25 years has been waging a battle for independence.

On August 30, 1999, the people of East Timor participated in a UN-sponsored referendum. An overwhelming 78.5% of the population rejected the Indonesian offer of special autonomy within the republic and endorsed for complete independence. However, soon after the referendum, which ended on a peaceful note, the island saw the re-emergence of violence. Pro-Jakarta militia clashed with the pro-independence militia to create an

atmosphere of unrest. The UN had to step in to ensure smooth transition of power. A five-member UN delegation arrived in Jakarta for talks with the Indonesian government, with the objective to prevent unrest and violence in East Timor. Secretary General Kofi Annan issued a 48-hour deadline to Indonesia to bring the militias under control. The UN Security Council also sanctioned the setting up of a multinational force whose objective would be to restore peace and security in East Timor.

The first contingent of the UN Peacekeeping Force headed by Australia has arrived in East Timor. If the demonstrations in Jakarta and the peacekeeping forces are any indication, the forces are in for a tough time. Pro-Jakarta rebels have warned that they would target the foreign soldiers. With Australia leading the peacekeeping force in East Timor, relations between Indonesia and Australia has also nosedived. As of now, the UN is in command in East Timor and it remains to be seen how long the peacekeeping force will have to stay on.

# Australia

## 'No' to a republic

The referendum in Australia, which took place on 6th November 1999 over the issue of ending ties with the British monarchy, showed 55 per cent of Australians rejected the idea of Australia being established as a republic. The support for ties with the British monarchy derived as the result of the machinations of Prime Minister John Howard. The referendum has a clause ordering to which Australia would have a constitutional system, elected indirectly by a special two-thirds majority of the Parliament, if Australia voted a republic. It is believed that had the power to elect the President been given directly to the people rather than parliamentarians, the voters would have supported a republic of Australia. Just six days before the referendum, a one-day campaign by the media showed that up to 30 per cent of voters did not want the Queen of Britain to be the head of state of Australia.

On the voters it returned the President's slogan by promising war against "communism," the old enemy, the Soviet Union. This was like passing the idea of America in 1907 as a nation first divided in the referendum. The

debate was not merely an attempt to sever links with Britain but also about an identity, a vision, creating a post-modern nation in Asia-Pacific. Instead of being seen as a former British colony. But the referendum has shown that while moving itself in the region of southeast Asia, Australia continues to seek its non-Asian identity. Australians believe that their marital constitutional arrangements have no implications for its relations with other Asian countries. The Australian Prime Minister, Sir John Howard, said "Asian countries don't give a damn about our constitutional arrangements... Australia has always gone to have dinner with the East, the Americans." The treaty defines the boundary within which the foreign policy of Australia would be defined in the years to come. Though the referendum in 1992 is now seen as a relief for the British Empire, even the latter move has a set back to its empire. The referendum decision is a relief for the British Empire, the sense of freedom about the past, not announced a step back for Australia's British Empire.

### Countries under the British Mandate

Cattle - one herd of 100 head  
 Horses - one herd of 100 head  
 Sheep - one herd of 100 head  
 Pigs - one herd of 100 head  
 Chickens - one flock of 100 head  
 Ducks - one flock of 100 head  
 Geese - one flock of 100 head  
 Rabbits - one flock of 100 head  
 Squirrels - one flock of 100 head  
 Deer - one flock of 100 head  
 Wolves - one flock of 100 head  
 Bears - one flock of 100 head  
 Foxes - one flock of 100 head  
 Coyotes - one flock of 100 head  
 Badgers - one flock of 100 head  
 Skunks - one flock of 100 head  
 Possums - one flock of 100 head  
 Raccoons - one flock of 100 head  
 Weasels - one flock of 100 head  
 Minks - one flock of 100 head  
 Otters - one flock of 100 head  
 Beavers - one flock of 100 head  
 Muskrats - one flock of 100 head  
 Shrews - one flock of 100 head  
 Moles - one flock of 100 head  
 Chipmunks - one flock of 100 head  
 Squirrels - one flock of 100 head  
 Deer - one flock of 100 head  
 Wolves - one flock of 100 head  
 Bears - one flock of 100 head  
 Foxes - one flock of 100 head  
 Coyotes - one flock of 100 head  
 Badgers - one flock of 100 head  
 Skunks - one flock of 100 head  
 Possums - one flock of 100 head  
 Raccoons - one flock of 100 head  
 Weasels - one flock of 100 head  
 Minks - one flock of 100 head  
 Otters - one flock of 100 head  
 Beavers - one flock of 100 head  
 Muskrats - one flock of 100 head  
 Shrews - one flock of 100 head  
 Moles - one flock of 100 head  
 Chipmunks - one flock of 100 head

1. The first part of the document is a list of names and their corresponding dates. The names are: "John Doe", "Jane Smith", "Bob Johnson", "Alice Brown", "Charlie White", "David Green", "Eve Black", "Frank Gray", "Grace Pink", "Henry Blue", "Ivy Yellow", "Jack Purple", "Karen Red", "Leo Orange", "Mia Silver", "Noah Gold", "Olivia Bronze", "Peter Copper", "Quinn Iron", "Rachel Steel", "Sam Tin", "Tina Lead", "Uma Zinc", "Victor Nickel", "Wendy Platinum", "Xavier Silver", "Yara Gold", "Zoe Bronze". 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**Newspapers** - The following newspapers are published in the city of New York:

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1. The first part of the document is a list of names and dates, which appears to be a roster or a list of participants. The names are written in a cursive script, and the dates are written in a more formal, printed script. The list is organized into columns, with names in the first column and dates in the second column.

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# INTERNATIONAL ORGANISATIONS



## The United Nations (UN)

The United Nations is an association of States, which have pledged themselves to maintain international peace and security and co-operate in solving international political, economic, social cultural and humanitarian problems towards achieving this end. The name 'United Nations' was devised by United States President Franklin D. Roosevelt and was first used in the Declaration by United Nations of 1 Jan. 1942, during the second World War, when representatives of 26 nations pledged their Governments to continue fighting together against the Axis powers. The charter was signed on 26 June 1945 by the representatives of the 50 countries. The United Nations officially came into existence on 24 Oct. 1945, with the deposit of the requisite number of ratifications of the charter with the US Department of State. United Nations day is celebrated on 24 Oct. each year.

Today, 80% of the UN's work is devoted to helping developing countries build the capacity to

help themselves. This includes promoting the creation of independent and domestic societies, which it is hoped will offer vital support for the charter's goals in the 21st century; the protection of human rights, saving children from starvation and disease, providing relief assistance to refugees and disaster victims, countering global crime, drugs and disease, and assisting countries devastated by war and the long-term threat of land mines.

The UN has six principal organs established by the founding charter. All have their headquarters in New York except the International Court of Justice, which has its seat in The Hague. The six principal of UN organs are as follows:

- 1 The General Assembly: Composed of all member's is the main deliberative body; each member has 1 vote. It meets once a year, commencing on the first Tuesday following 1 September and the general debate is organized over a period of 2 weeks, beginning the 3rd week of Sept. As the start of each session, the Assembly elects a new President. 21 Vice president and the Chairman of its main committees. Emergency sessions may be called within 24 hours at the request of the Security Council on the vote of any 9 council members, or a majority of United Nations members or 1 member of the majority of member concur. Decisions on important questions, such as peace and security, new membership and budgetary matters require a two third majority, other questions require a simple majority of members present and voting. The General Assembly has right to discuss any matter within the scope of the charter and with the exception of any situation or dispute on the agenda of the Security Council, may take recommendations on any such questions or matters. While it has no power to compel action by any Government,

its recommendation is seen to carry the weight of world opinion.

The Security Council has primary responsibility, under the charter, for the maintenance of international peace and security. It is so organized as to be able to function continuously. A representative of each of its member must be present at all times at UN headquarters, but it may meet elsewhere as best facilitates its work.

The presidency of the council rotates monthly, according to the English alphabetical order and of members' names. The council consists of 15 members: 5 permanent and 10 non-permanent elected for 2-years term by a two third majority of the General Assembly. Each member has 1 vote. Retiring members are not eligible for immediate re-election. Any other member of the United Nations may participate without a vote in the discussion of questions specially affecting its interests. Permanent members of the Security Council are China, France, and Russian Federation, UK, USA, Bahrain, Brazil, Gabon, Gambia, Slovenia (until 31 Dec. 1999), Argentina, Canada, Malaysia, Namibia, Netherlands (until 31 Dec. 2000), are the non-permanent members of the Security Council.

The Economic and Social Council (ECOSOC) is responsible under the General Assembly for co-ordinating the functions of the UN with regard to international economic, social, cultural, educational, health and related matters. It consists of 54 member states elected by a two third majority of the General Assembly for a 3-year term. A third of the member retire each year. Retiring members are eligible for immediate re-election. Each member has 1 vote. Decisions are made by a majority of the members present and voting.

The council holds one 6-weeks substantive session a year, alternating between New York and Geneva, and one organizational session in New York. Special session may be held if required. The President is elected for 1 year and

is eligible for immediate re-election. The UN has US\$5,300 m a year to spend on economic and social development.

4. The Trusteeship Council was established to ensure the Government responsible for administering Trust Territories takes adequate steps to prepare them for self-government or independence. It consists of five permanent members of the Security Council. The task of decolonization was completed in 1994. When the Security Council terminated the Trusteeship Agreement for the last of the original UN Trusteeship (Palau), administered by USA. All trust territories attained self-government or independence either as separate states or by joining neighbouring independent countries. Since 1994 the council's role has been under review. The members of the Trusteeship Council are China, France, Russia, and UK, USA.

5. The International Court of Justice is the principal judicial organ of the UN. It has a dual role to settle in accordance with international law the legal disputes submitted to it by states and to give advisory opinion on legal questions referred to it by duly authorized international organs and agencies.

The court is composed of 15 Judges, each of a different nationality elected with an absolute majority to 9 year term of office by both the General Assembly and the Security Council.

The composition of the court must also reflect the main forms of civilization and principal legal system of the world. Elections are held every 3 years for one third of the seats. Retiring judges may be re-elected members do not represent their respective governments but sit as independent magistrates. In the court, each must possess the qualifications required in their respective countries for appointment to the highest judicial offices or be jurists of recognized competence in international law.

The court elects as its own president and vice-president for a 3-year term and is permanently in session. Decisions are taken by a majority

of judges present, subject to a quorum of 9 members, with the president having a casting vote. Judgment is final and without appeal, but a revision may be applied for within 10 years from the date of the judgment on the ground of a few decisive factor. In contentious cases only States may apply to or appear before the court, which is open only to parties to its statute, which automatically includes all members of the UN. The conditions under which the court will be open to other states are laid down by the Security Council. The jurisdiction of court covers all matters, which parties refer to it, and all matters provided for in the charter or in treaties and conventions in force. Official languages of the court are English, French. The expenses of the Court are borne by the UN. No court fees are paid by parties to the statute. Headquarters of the International Court of Justice is in The Hague, Netherlands.

6. The Secretariat services the other 5 organs of the UN, administering their programmes and carrying out the organization's day to day work with its increasingly streamlined staff of some 6,900 at the UN Headquarters in New York and all over the World

At its head is the Secretary General appointed by the General Assembly on the recommendation of the Security Council for a 5 year, renewable term. The Secretary General acts as chief administrative officer in all meeting of the General Assembly, Security Council, Economic and Social Council and Trusteeship Council. Headquarters of the Secretariat is in New York.

### Specialized Agencies of the UN

The inter governmental agencies related to the UN by Special agreements are separate autonomous organisations which work with the UN and each other through the co-ordinating machinery of the Economic and Social Council. Description of some of the important organizations are given here

**Food and Agriculture Organization (FAO):** In 1943, the International conference, of food and Agriculture, set up an Interim Commission, with a remit to establish an organization. The aims of FAO are to raise level of nutrition and standards of living to improve the production and distribution of all food and agricultural products from farms, forests and fishers; to improve the living conditions of rural populations; and by these means, to eliminate hunger.

In carrying out these aims, FAO promotes investment in agriculture, better soil and water management, improved yields of crops and livestock, agricultural research and the transfer of technology to developing countries; and encourages the conservation of natural resources and rational use of fertilizer and pesticides; the development and sustainable utilization of marine and inland fisheries; the sustainable management of forest resources and the combating of animal disease. Special FAO programmes help countries prepare for, and provide relief in the event of emergency food situations, in particular through the setting up of food reserves. The FAO conference, composed of all members, meets every other year to determine policy and approve the FAO's budget and programme. Headquarters of FAO is in Rome Italy

**International Bank for Reconstruction and Development (IBRD):** The World Bank conceived at the UN monetary and financial conference at Bretton Woods in July 1944, the IBRD. Frequently called the World Bank, began operation in June 1946 its purpose being to provide funds, policy guidance and technical assistance to facilitate economic development in its poorer member countries. The Bank obtains its funds from the following sources. Capital paid in by member countries, sales of its own securities; sales of part of its loans repayments; and net earnings. The Bank is self-supporting raising most of its money on the world's financial markets. A wide variety of technical assistance is at the core of IBRD's activities. It acts as executing agency for a number

## The United Nations System

- Main committees
- Standing and procedural committees
- Other subsidiary organs

**Trusteeship Council**

**Security Council**

**General Assembly**

**International Court of Justice**

**Secretariat**

**Economic and Social Council**

- UNRWA : United Nations Relief and Works Agency for Palestine Refugees in the Near East
- UNCTAD : United Nations Conference on Trade and Development
- UNICEF : United Nations Children's Fund
- UNHCR : United Nations Office of High Commissioner for Refugees
- WFP : World Food Program
- UNITAR : United Nations Institute for Training and Research
- UNDP : United Nations Development Program
- UNEP : United Nations Environment Program
- UNU : United Nations University
- UNCHS (Habitat) : United Nations Centre for Human Settlements
- UNFPA : United Nations Population Fund
- UNSF : United Nations Special Fund
- WFC : World Food Council

### Regional Commissions

- ECA : Economic Commission for Africa
- ECE : Economic Commission for Europe
- ECLAC : Economic Commission for Latin America and the Caribbean
- ESCAP : Economic and Social Commission for Asia and the Pacific
- ESCWA : Economic and Social Commission for Western Asia

### Functional Commissions

- Commission on Human Rights
- Commission on Narcotic Drugs
- Commission for Social Development
- Commission on the Status of Women
- Population Commission
- Statistical Commission

### Seasonal, standing, and ad hoc committees

### Principal organs of the United Nations

### Other United Nations organs

- Specialized agencies and other autonomous organizations within the system

- UNAVEM : United Nations Angola Verification Mission
- UNDOF : United Nations Disengagement Observer Force
- UNFICYP : United Nations Force in Cyprus
- UNIFIL : United Nations Truce Supervision Force in Lebanon
- UNIMOG : United Nations Iraq Military Observer Group
- UNMOGIP : United Nations Military Observer Group in India and Pakistan
- UNTSO : United Nations Truce Supervision Organization
- Military Staff Committee

- IAEA : International Atomic Energy Agency

- GATT : General Agreement on Tariffs and Trade

- ILO : International Labour Organization

- FAO : Food and Agriculture Organization of the United Nations

- UNESCO : United Nations Educational, Scientific and Cultural Organization

- WHO : World Health Organization

- IMF : International Monetary Fund

- IDA : International Development Association

- IBRD : International Bank for Reconstruction and Development

- IFC : International Finance Corporation

- ICAO : International Civil Aviation Organization

- UPU : Universal Postal Union

- ITU : International Telecommunication Union

- WMO : World Meteorological Organization

- IMO : International Maritime Organization

- WIPO : World Intellectual Property Organization

- IFAD : International Fund for Agricultural Development

- UNIDO : United Nations Industrial Development Organization



trade and exchange rate stability; to assist in the removal of exchange restrictions and the establishment of a multilateral system of payments; and to alleviate any serious disequilibrium in members' international balance of payments by making the financial resources of the IMF available to them, usu-



Michel Camdessus : Outgoing Managing Director of IMF

ally subject to economic policy conditions to ensure the revolving nature of IMF resources. Each member of the IMF undertakes a broad obligation to collaborate with the IMF and other members to ensure orderly exchange arrangements and to promote a system of stable exchange rates. In addition members are subject to certain obligations relating to domestic and external policies that can affect the balance of payments and the exchange rates.

The IMF makes its resources available, under proper safeguards, to its members to meet short term or medium term payment difficulties. The capital resources of the IMF comprise special drawing right (SDR) and currencies that the members pay under quotas calculated for them when they join the IMF. A member's quota is largely determined by its economic position relative to other members; it is also linked to their drawing rights on the IMF under both regular and special facilities, their voting power, and their share of SDR allocation. Every IMF members is required to subscribe to the IMF an amount equal to its quota. An amount not exceeding 25% of the quota has to be paid in reserve assets; the balance in the member's own currency. The members with the largest quota are 1st The USA; joint 2nd Germany and Japan; joint 4th; Joint 2nd Germany and Japan; joint 4th; France and the UK. The IMF has authorized under its Articles of Agreement to

supplement its resources by borrowing

The IMF works with the IBRD (World Bank) to address the problem of the 41 most heavily indebted Poor Countries (33 in Sub-Saharan Africa) through their Initiative for the Heavily Indebted poor countries (HIPC). It is designed to ensure that HIPC's with a sound track record of economic adjustment receive debt relief sufficient to help them to attain a sustainable debt situation over the medium term.

The highest authority is the Board of Governors, on which each member government is represented. Normally the Governors meet once a year, and may take votes by mail or other means between meetings. The Board of Governors had delegated many of its power to the 24-executive directors in Washington, who are appointed or elected by individual member countries or group of countries. Each appointed director has voting power proportionate to the quota of the government, he or she represents, while each elected director casts all the votes of the countries represented. The managing director is selected by the executive directors and serves as chairman of the Executive Board but may not vote except in case of a tie. The term of office is 5 years, but may be extended or terminated at the discretion of the executive directors. In Dec. 1998 the IMF had 182 members. Headquarters of the IMF is in Washington.

**United Nations Educational, Scientific and Cultural Organization (UNESCO) :** UNESCO's constitution was signed in London on 16 Nov. 1945 by 37 countries and the organization came into being in Nov. 1946 on the promise that, "Since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed". In Jan. 1998, UNESCO had 187 members including the UK, which rejoined in 1997. They include 4 Associate members with no single members status in the UN. The USA is not a member.

UNESCO's primary objective is to contribute to peace and security in the World by promoting



collaboration among the nation through education, science, communication and culture in order to further universal respect for Justice, the rule of law, human rights and fundamental freedoms, affirmed for all peoples of the World by the UN Charter.

Various activities support and foster national projects to renovate education system and develop alternative educational strategies towards a goal of life long education for all. The four main areas of focus, today are : to provide basic education, improve the quality of basic education, and education for 21st century. There are regional and sub-regional offices for education in 53 countries.

UNESCO seeks to promote International Scientific Co-operation and encourages scientific research designed to improve living conditions. Science co-operation offices have been set up in Cairo, Jakarta, Nairobi, New Delhi, Montevideo and Venice.

In communication field activities are geared to promoting the free flow of information, freedom of expression, press freedom, media independence and pluralism. In the cultural field, UNESCO's focus areas are research on the link between culture and development and action to conserve and protect the world's cultural inheritance by assisting member states in studying and preserving both the physical and the non-physical heritage of their societies.

The general conference, composed of representatives from each member State, meets biennially to decide policy programme and budget. A 58 members Executive Board elected by conference meets twice a year and there is a Secretariat. Headquarters of UNESCO is in Paris, France.

**World Health Organization (WHO) :** An international conference convened by the UN Economic and Social Council to consider a single health organization resulted in the adoption on 22 July, 1946 of the constitution of World Health Organization, which came into force on 7 April 1948.

WHO's objective is 'the attainment by all

peoples of the highest level of health'. As the directing and co-ordinating authority on international health, it establishes and maintains collaboration with the UN, specialized agencies, government health administrations professional and other group concerned with health. The constitution also directs WHO to assist government to strengthen their health services to stimulate and advance work to eradicate disease to promote maternal and child health, mental health, medical research and the prevention of accidents to improve standards of teaching and training in the health professions, and of nutrition housing, Sanitation, working condition and other aspects of environmental health.

Co-operation in country project is undertaken only on the request of the government concerned through the Original offices of the organization. World wide technical services are made available by headquarters. The main thrust of WHO's activities in recent years has been towards promoting national, regional and global strategies for the attainment of the main social target of the member state for the coming year. 'Health for All by the year 2000' or the attainment by all citizen of the world of a level of health that will permit them to lead a socially and economically productive life.

The principal organ of WHO are the World Health Assembly, the Executive Board and the Secretariat. Each of the 192 member's states has the right to meet annually in Geneva. The 34 member Executive Board is composed of technically qualified health experts designated by a majority of members states as elected by the Assembly. The Secretariat consists of technical and administrative staff headed by a Director-General who is appointed for not more than two 5 years terms. Health activities in member are carried out through regional organizations which have been established in Africa (Brazzaville), South East Asia (New Delhi), Europe (Copenhagen), Eastern Mediterranean (Alexandria) and Western Pacific (Manila). The Pan American Sanitary Bureau in Washington serves as the regional office of WHO for the Americans. Headquarters of the WHO

n Geneva, Switzerland.

**World Intellectual Property Organization (IPO) :** The roots of the World Intellectual property organization go back to the Paris convention for the protection of Industrial property. Adopted in 1883, and the Berne Convention for the protection of Literary and Artistic Work (adopted 1886). The convention establishing WIPO was signed at Stockholm in 1967 by 51 countries and entered into force in April 1970. WIPO became a UN specialized agency in 1974.

Aims of WIPO are to promote the protection of intellectual property throughout the world through co-operation among member's States and to ensure administrative co-operation among the intellectual property unions created by Paris and Berne conventions.

There are three principal areas of activity of WIPO: The progressive development of international intellectual property law; global protection system and services and co-operation of development. The development and application of international norms and standards is a fundamental part of WIPO's activities. It administers 21 treaties (15 on industrial property and 6 on copyright). The treaties dealing with the international registration of trademarks and industrial designs are respectively, the Madrid Agreement and the Hague Agreement.

WIPO takes a range of initiatives to tackle the implications of modern digital and communications technology for copyright and industrial property law and in electronic commerce transcending national jurisdictions. Headquarters of WIPO is in Geneva, Switzerland.

**World Trade Organization (WTO) :** The WTO is founded on the General Agreement on Tariffs and Trade (GATT), which came into force on 1 Jan. 1948. Its 23 original signatories were members of a preparatory committee appointed by the UN Economic and Social Council to draft the charter for a proposed International Trade Organization. Since the charter was never ratified, the General Agreement remained the only international instrument laying down trade rules. In Dec.



Mike Moore, Director-General of the WTO

In 1993, there were 111 contracting parties and a further 22 countries applying GATT rules on a de facto basis. On 15 April 1994, trade ministers of 123 countries signed the final Act of the GATT Uruguay Round of negotiations at Marrakesh bringing the WTO into being on 1 Jan. 1995. As of Nov. 1998, the WTO has 132 members.

The object of the Act is the liberalization of World Trade. By it, member countries undertake to apply fair trade rules covering commodities, services and intellectual property. It provides for the lowering of tariffs on industrial goods and tropical products, the abolition of import duties on a variety of items; the progressive abolition of quotas on garments and textiles; the gradual reduction of trade-distorting subsidies and import barriers, and agreement on intellectual property and trade in services. Members are required to accept the results of the Uruguay Round Talks in their entirety and subscribe to all the WTO's agreements and disciplines. There are no enforcement procedures; however, decisions are ultimately reached by consensus.

The WTO is the legal and institutional foundation of the multilateral trading system. Surveillance of national trade policies is an important part of its work. At the centre of this is the Trade Policy Review Mechanism (TPRM) agreed by ministers in 1994. The TPRM was broadened in 1995 when the WTO came into being, to cover services trade and intellectual property. Its principal objective is to facilitate the smooth functioning of the multilateral trading system by enhancing the transparency of member's trade policies. All members are subject to review under TPRM, which mandates that 4 members with the largest share of World Trade (European Union, USA, Japan, Canada) be reviewed by every 2 years, the next 16, every 4 years and others every 6, with a longer period able to be fixed for the least developed members. Reviews are conducted by the Trade Policy Review Body (TPRB) on the basis of a policy statement by the member under review and a report by economists in the Secretariat's Trade Policy Review Division.

A 2 yearly ministerial meeting is the ultimate policy making body. The 132 member General Council has some 30 subordinate councils and committees. The dispute settlement body was set up to deal with disputes between countries. Appeals against its verdict are heard by 97 member Appellate Body. Dispute panels may be set up ad-hoc, and objectors to their ruling may appeal to the Appellate Body whose decision is virtually binding. Refusal to comply at this stage. Results in the application of trade sanctions. Before cases are heard by dispute panel, there is a 60-day consultation period. The previous GATT Secretariat now serves the WTO, which has no resources of its own other than its operating budget. Headquarters of WTO is in Geneva Switzerland.

## Other International Organizations and Groups

### African, Caribbean, and Pacific Countries (ACP)

*established* : 1 April 1976

*objective* : Members have a preferential economic and aid relationship with the EC

*members* : 69

### African Development Bank (AfDB)

*established* : 4 August 1963

*objective* : to promote economic and social development

*members* : regional members (51), non-regional members (25)

### Agency for Cultural and Technical Cooperation (ACCT)

*established* : 21 March 1970

*objective* : to promote cultural and technical cooperation among French-speaking countries.

*members* : 32, associate members (7), participating governments (2)

### Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL)

*established* : 14 February 1967

*objective* : to encourage the peaceful uses of atomic energy and prohibit nuclear weapons.

*members* : 24

### Andean Group (AG)

*established* : 26 May 1969, effective 16 Oct. 1969

*objective* : to promote harmonious development through economic integration.

*members* : 5, associate member (1), observers (26)

### Arab Bank for Economic Development in Africa (ABEDA)

*established* : 18 February 1974, effective 16 September 1974

*objective* : to promote economic development.

*members* : 16

### Arab Cooperation Council (ACC)

*established* : 16 February 1989

*objective* : to promote economic cooperation and integration, possibly leading to an Arab Common Market

*members* : 4 (Egypt, Iraq, Jordan, Yemen)

### Arab Fund for Economic and Social Development (AFESD)

*established* : 16 May 1968

*objective* : to promote economic and social development

*members* : 20 plus the Palestine Liberation Organization

**Arab League (AL)**

*established* : 22 March 1945

*objective* : to promote economic, social, political, and military cooperation.

*members* : 20 plus the Palestine Liberation Organization

**Arab Monetary Fund (AMF)**

*established* : 27 April 1976, effective 2 Feb. 1977

*objective* : to promote Arab cooperation, development, and integration in monetary and economic affairs.

*members* : 19 plus the PLO.

**Asia Pacific Economic Cooperation (APEC)**

*established* : November 1989;

*objective* : to promote trade and investment in the Pacific basin;

*members* : (15) all ASEAN members

**Asian Development Bank (AsDB)**

*established* : 19 December 1966;

*objective* : to promote regional economic cooperation;

*members* : (35)

**Association of Southeast Asian Nations (ASEAN)**

*established* : 9 August 1967;

*objective* : regional economic, social, and cultural cooperation among the non-Communist countries of Southeast Asia;

*members* : (6) Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand;

**Australia Group**

*established* : 1984;

*objective* : to consult on and coordinate export controls related to chemical and biological weapons;

*members* : (22)

**Australia-New Zealand-United States Security Treaty (ANZUS)**

*established* : 1 September 1951, effective 29 April, 1952;

*objective* : trilateral mutual security agreement, although the US suspended security obligations to NZ on 11 August 1986;

*members* : (3) Australia, NZ, US

**Bank of International Settlements (BIS)**

*established* : 20 Jan. 1930, effective 17 March 1930;

*objective* : to promote cooperation among central banks in international financial settlements.

*members* : (29)

**Benelux Economic Union (BENELUS)**

*established* : 3 February 1958, effective 1 November 1960;

*objective* : to develop closer economic cooperation and integration;

*members* : (3) Belgium, Luxembourg, Netherlands

**Big Seven**

*established* : NA;

*objective* : to discuss and coordinate major economic policies;

*members* : (7) Big Six (Canada, France, Germany, Italy, Japan, UK) plus the US Group of 7.

**Big Six**

*established* : NA;

*objective* : economic cooperation;

*members* : (6) Canada, France, Germany, Italy, Japan, UK

**Commission on Human Rights**

*established* : 18 February 1946

*objective* : ECOSOC organization dealing with human rights;

*members* : (38) selected on a rotating basis from all regions with emphasis on producing and processing countries

**Commonwealth (C)**

*established* : 31 December 1931

*objective* : to coordinate intercommonwealth relations and to provide a mechanism for the orderly dissolution of the USSR.

*members* : (11)

**Customs Cooperation Council (CCC)**

*established* : 15 December 1950

*objective* : to promote international cooperation in customs matters.

*members* : (108)

**Economic and Social Commission for Asia and the Pacific (ESCAP)**

*established* : 28 March 1947 as Economic Commission for Asia and the Far East (ECAFE)

*objective* : to promote economic development in a regional commission for the UN's ESCAP

*members* : (39)

## Economic and Social Council (ECOSOC)

*established* : 26 June 1945, *effective* 24 October 1945;

*objective* : to coordinate the economic and social work of the UN; includes five regional commissions (see Economic Commission for Africa, Economic Commission for Latin America and the Caribbean, Economic and Social Commission for Asia and the Pacific, Economic and Social Commission for Western Asia) and six functional commissions (see Commission on Human Rights, Commission on Narcotic Drugs, Commission on the Status of Women, Population Commission, and Statistical Commission);

*members* : (54) selected on a rotating basis from all regions

## Economic Commission for Europe (ECE)

*established* : 28 March 1947;

*objective* : to promote economic development as a regional commission of the UN's ECOSOC;

*members* : (33)

## European Community (EC)

*established* : 8 April 1965, *effective* 1 July 1967,

*objective* : a fusion of the European Atomic Energy Community (Euratom), the European Coal and Steel Community (ECSC), and the European Economic Community (EEC or Common Market); the EC plans to establish a completely integrated common market in 1992 and an eventual federation of Europe.

*members* : (12)

## Food and Agriculture Organization (FAO)

*established* : 16 October 1945,

*objective* : UN specialized agency to raise living standards and increase availability of agricultural products;

*members* : (157)

## Group of (G-7)

*established* : 22 September 1985;

*objective* : the seven major non-Communist economic powers;

*members* : (7) Group of 5 (France, Germany, Japan, UK, US) plus Canada and Italy as the Big Seven;

## Group of 15 (G-15)

*established* : 1989,

*objective* : to promote economic cooperation among developing nations; to act as the main political organ for the Non-Aligned Movement;

*members* : (15)

## Group of 77 (G-77)

*established* : October 1967;

*objective* : to promote economic cooperation among developing countries; name persists in spite of increased membership;

*members* : (127)

## International Bank for Reconstruction and Development (IBRD)

*established* : 22 July 1944, *effective* 27 Dec. 1945;

*objective* : UN specialized agency that initially promoted economic rebuilding after World War II and now provides economic development loans;

*members* : (156)

## International Court of Justice (ICJ)

*established* : 26 June 1945, *effective* 24 Oct. 1945;

*objective* : primary judicial organ of the UN;

*members* : (15)

## International Criminal Police Organization (INTERPOL)

*established* : 13 June 1956;

*objective* : to promote international cooperation between criminal police authorities;

*members* : (152)

## International Development Association (IDA)

*established* : 26 January 1960, *effective* 24 September 1960;

*objective* : UN specialized agency and IBRD affiliate that provides economic loans for low income countries;

*members* : (22)

## International Energy Agency (IEA)

*established* : 15 November 1974;

*objective* : established by the OECD to promote cooperation on energy matters, especially emergency oil sharing and relations between oil consumers and oil producers;

*members* : (21)

## International Fund for Agricultural Development (IFAD)

*established* : 16 November 1974;

*objective* : UN specialized agency that promotes

gricultural development;

*members* : (144)

**International Labor Organization (ILO)**

*established* : 11 April 1919 (affiliated with the UN 1 December 1946);

*objective* : UN specialized agency concerned with world labor issues;

*members* : (135)

**International Maritime Satellite Organization (INMARSAT)**

*established* : 3 September 1976, effective 26 July 1979;

*objective* : to provide world wide communications for maritime and other applications;

*members* : (63)

**International Monetary Fund (IMF)**

*established* : 22 July 1944] effective 27 December 1945;

*objective* : UN specialized agency concerned with world monetary stability and economic development;

*members* : (156)

**International Olympic Committee (IOC)**

*established* : 23 June 1894;

*objective* : to promote the Olympic ideals and administer to Olympic games;

*members* : (167)

**International Organization for Standardization (ISO)**

*established* : February 1947;

*objective* : to promote the development of international standards;

*members* : (72)

**International Red Cross and Red Crescent Movement**

*established* : 1928;

*objective* : to promote worldwide humanitarian aid through the International Committee of the Red Cross (ICRC) in wartime, and League of Red Cross and Red Crescent Societies (LORCS) in peacetime;

*members* : (9)

**International Telecommunication Union (ITU)**

*established* : 9 December 1932, effective 1 January 1934, affiliated with the UN 15 November 1947;

*objective* : UN specialized agency concerned with world telecommunications;

*members* : (164)

**International Telecommunications Satellite Organization (INTELSAT)**

*established* : 20 August 1971, effective 12 February 1973;

*objective* : to develop and operate a global commercial telecommunications satellite system;

*members* : (118)

**Missile Technology Control Regime (MTCR)**

*established* : April 1987;

*objective* : to arrest missile proliferation by controlling the export of key missile technologies and equipment;

*members* : (20)

**Nonaligned Movement (NAM)**

*established* : 1-6 September 1961,

*objective* : political and military cooperation apart from the traditional East or West blocs;

*members* : (101)

**North Atlantic Treaty Organization (NATO)**

*established* : 17 September 1949,

*objective* : mutual defense and cooperation in members : (16)

**Organization for Economic Cooperation and Development (OECD)**

*established* : 14 Dec 1950, effective 30 Sept 1961;

*objective* : to promote economic cooperation and development;

*members* : (24)

**Organization of African Unity (OAU)**

*established* : 25 May 1963;

*objective* : to promote unity and cooperation among African states;

*members* : (50)

**Organization of Petroleum Exporting Countries (OPEC)**

*established* : 22-25 September 1959,

*objective* : to promote Islamic solidarity and cooperation in economic, social cultural, and political affairs;

*members* : (47)

## Economic and Social Council (ECOSOC)

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*objective* : to coordinate the economic and social work of the UN; includes five regional commissions (see Economic Commission for Africa, Economic Commission for Latin America and the Caribbean, Economic and Social Commission for Asia and the Pacific, Economic and Social Commission for Western Asia) and six functional commission (see Commission on Human Rights, Commission on Narcotic Drugs, Commission on the Status of Women, Population Commission, and Statistical Commission);

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*established* : 22 July 1944, effective 27 Dec. 1945

*objective* : UN specialized agency that initially promoted economic rebuilding after World War I and now provides economic development loans

*members* : (156)

## International Court of Justice (ICJ)

*established* : 26 June 1945, effective 24 Oct. 1945

*objective* : primary judicial organ of the UN;

*members* : (15)

## International Criminal Police Organization (INTERPOL)

*established* : 13 June 1956;

*objective* : to promote international cooperation between criminal police authorities;

*members* : (152)

## International Development Association (IDA)

*established* : 26 January 1960, effective 24 September 1960;

*objective* : UN specialized agency and IBRD affiliate that provides economic loans for low income countries;

*members* : (22)

## International Energy Agency (IEA)

*established* : 15 November 1974;

*objective* : established by the OECD to promote cooperation on energy matters, especially emergency oil sharing and relations between oil consumers and oil producers;

*members* : (21)

## International Fund for Agricultural Development (IFAD)

*established* : NA November 1974;

*objective* : UN specialized agency that promote

agricultural development;

*members* : (144)

**International Labor Organization (ILO)**

*established* : 11 April 1919 (affiliated with the UN 14 December 1946);

*objective* : UN specialized agency concerned with world labor issues;

*members* : (135)

**International Maritime Satellite Organization (INMARSAT)**

*established* : 3 September 1976, effective 26 July 1979;

*objective* : to provide world wide communications for maritime and other applications;

*members* : (63)

**International Monetary Fund (IMF)**

*established* : 22 July 1944) effective 27 December 1945;

*objective* : UN specialized agency concerned with world monetary stability and economic development;

*members* : (156)

**International Olympic Committee (IOC)**

*established* : 23 June 1894;

*objective* : to promote the Olympic ideals and administer to Olympic games;

*members* : (167)

**International Organization for Standardization (ISO)**

*established* : February 1947;

*objective* : to promote the development of international standards;

*members* : (72)

**International Red Cross and Red Crescent Movement**

*established* : 1928;

*objective* : to promote worldwide humanitarian aid through the International Committee of the Red Cross (ICRC) in wartime, and League of Red Cross and Red Crescent Societies (LORCS) in peacetime;

*members* : (9)

**International Telecommunication Union (ITU)**

*established* : 9 December 1932, effective 1 January 1934, affiliated with the UN 15 November 1947;

*objective* : UN specialized agency concerned with world telecommunications;

*members* : (164)

**International Telecommunications Satellite Organization (INTELSAT)**

*established* : 20 August 1971, effective 12- February 1973;

*objective* : to develop and operate a global commercial telecommunications satellite system;

*members* : (118)

**Missile Technology Control Regime (MTCR)**

*established* : April 1987;

*objective* : to arrest missile proliferation by controlling the export of key missile technologies and equipment;

*members* : (20)

**Nonaligned Movement (NAM)**

*established* : 1-6 September 1961;

*objective* : political and military cooperation part from the traditional East or West blocs;

*members* : (101)

**North Atlantic Treaty Organization (NATO)**

*established* : 17 September 1949;

*objective* : mutual defense and cooperation in

*members* : (16)

**Organization for Economic Cooperation and Development (OECD)**

*established* : 14 Dec. 1950, effective 30 Sept. 1961;

*objective* : to promote economic cooperation and development;

*members* : (24)

**Organization of African Unity (OAU)**

*established* : 25 May 1963;

*objective* : to promote unity and cooperation among African states;

*members* : (50)

**Organization of Petroleum Exporting Countries (OPEC)**

*established* : 22-25 September 1959,

*objective* : to promote Islamic solidarity and cooperation in economic, social cultural, and political affairs;

*members* : (47)



## South Asian Association for Regional Cooperation (SAARC)

*established* : 8 December 1985;

*objective* : to promote economic, social, and cultural cooperation;

*members* : (7) Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

## Southern African Customs Union (SACU)

*established* : 11 December 1969,

*objective* : to promote free trade and cooperation in customs matters;

*members* : (9)

## United Nations Center for Human Settlements (UNCHS or Habitat)

*established* : 12 October 1978,

*objective* : to assist in solving human settlement problems;

*members* : (88) selected on a rotating basis from all regions

## United Nations Children's Fund (UNICEF)

*established* : 11 December 1946,

*objective* : to help establish child health and welfare services,

*members* : (41) selected on a rotating basis from all regions

## United Nations Conference on Trade and Development (UNCTAD)

*established* : 30 December 1964,

*objective* : to promote international trade;

*members* : (181) all UN members plus Monaco, Switzerland, Tonga, Vatican City

## United Nations Development Program (UNDP)

*established* : 22 November 1965

*objective* : to provide technical assistance to stimulate economic and social development,

*members* : (48) selected on a rotating basis from all regions

## United Nations Educational, Scientific, and Cultural Organization (UNESCO)

*established* : 16 November 1945, effective 4 November 1946;

*objective* : to promote cooperation in education, science, and culture;

*members* : (159)

## United Nations Environment Program (UNEP)

*established* : 15 December 1972,

*objective* : to promote international cooperation on all environmental matters;

*members* : (58) selected on a rotating basis from all regions

## United Nations Industrial Development Organization (UNIDO)

*established* : 17 November 1966, effective 1 January 1967,

*objective* : UN specialized agency that promotes industrial development especially among the members,

*members* : (150)

## United Nations Office of the High Commissioner for Refugees (UNHCR)

*established* : 3 December 1949, effective 1 January 1951;

*objective* : to try to ensure the humanitarian treatment of refugees and find permanent solutions for refugee problems;

*members* : (43)

## Universal Postal Union (UPU)

*established* : 9 October 1874, affiliated with UN 15 November 1947, effective 1 July 1948;

*objective* : UN specialized agency that promotes international postal cooperation;

*members* : (168)

## World Health Organization (WHO)

*established* : 22 July 1946, effective 7 April 1948

*objective* : UN specialized agency concerned with health matters;

*members* : (164)

## World Intellectual Property Organization (WIPO)

*established* : 14 July 1967, effective 26 April 1970

*objective* : UN specialized agency concerned with the protection of literary, artistic, and scientific works

*members* : (125)

## World Meteorological Organization (WMO)

*established* : 11 Oct 1947, effective 4 April 1950

*objective* : specialized UN agency concerned with meteorological cooperation;

*members* : (162)

# WORLD CIVILIZATIONS

The term civilization carries many meanings. Common minds often employ it to indicate an advanced stage of development or a high standard of living. The German philosopher, Oswald Spengler says civilization as descent phases of the great cultures. The history of the world had been dominated successively by seven or eight major cultures, when they became ossified and stagnant, it characterised as "civilization". Which of the great world civilizations was the oldest, is still a battle point among historians. Many scholars acknowledge the Egyptian civilization as the oldest, side by side a respectable section supports the claims of the Tigris Euphrates valley. Never the less, there are certain facts which seem to suggest the priority of Egypt. The dwellers in the Nile valley enjoyed geographic advantages, a less enervating atmosphere, and a climate comparatively free from epidemic and the availability of metals and good building stones.

Following are given brief and comprehensive details about Egyptian, Mesopotamian, Chinese, Indus Valley, Greek and Roman civilizations.

## The Egyptian Civilization

The Egyptian civilization emerged and developed in a narrow strip of land along the river of Nile, which was green and fertile. So, Egypt is known as the "Gift of Nile". Historians have classified the history of Egypt into three periods such as, the Old Kingdom, the Middle Kingdom and the New Kingdom. Another classification as the Pyramid Age (3400-2500 B.C), the Feudal Age (about 1600 B.C) and the New Empire (about 1150 B.C). In the fourth and third millennium, the Pharaohs held Supreme power. They were considered both rulers and gods. With the decline of their power, the nobles and priests rose in to prominence. This led to feudal rule, internal war and foreign

invasions. In 1600 B.C, Egypt was reunited. The greatest of the Pharaohs of this period was Tutmosé III, who has been called the Napoleon of Egypt. The rule of the Pharaohs declined in course of time and Egypt came under the dominance of the Persians. Egypt was then conquered by Alexander the Great and was subsequently included in the Roman Empire.

From about 3200, B.C., Egypt was ruled by the Pharaohs. The term "Pharaohs" is derived from "Per-o", meaning royal house or great house. A Pharaoh was regarded as a divine being, the son of the Sun god, Ra. Besides being ruler and god, he was also the chief priest. The kingdom was divided into homes or districts and in early times, as many as forty-two "nomarchs" were governing the districts. During the Feudal Age the monarchs enjoyed immense freedom. There was a fairly well organised judiciary, though there was no separate class of judges. The Pharaoh heard the final appeals and thus he stood at the apex of judiciary.

There were two broad divisions in society, the rich and the poor. The royal family, the nobles and the priests belonged to the first class, the rest belonged to the second division. The so-called middle class consisted of scribes, merchants, artisans and farmers. Another notable feature of ancient Egyptian society was the high status given



to women. Women were allowed to succeed to the throne. The Egyptians were not allowed to marry more than one wife, though concubinage was common and even respected. One peculiar feature of this social order was the prevalence of the brother-sister marriages and marriages within the family.

Religion played a dominant role in the life of the ancient Egyptians. Baffled by the mysteries of nature particularly that of the Nile, the Egyptians from very early times accepted a belief in super-human and super natural forces. The Nile, the Sun and the Pharaoh were their chief gods, there were several others representing various other forces. Ra, the sun god (also called Amon Ra) was the most popular among the gods. Next to Ra or competing with him was Osiris, the god of vegetation and the god of the Nile. Several clans and cities had their own gods. Egyptians believed that the soul would be weighed by Anubis against a feather. The righteous souls would go to Orisis, the other would be devoured by the fierce dog waiting near the scales of Anubis.

The belief in life after death led to the practice of preservation of the corpses and providing them with the provisions required for the life thereafter. One of the results of this idea was the construction of large tombs called "Pyramids". The Pyramids are not temples but tombs of early kings. More than sixty such structures have been found in Egypt. The largest and the greatest of the Pyramids was begun by Pharaoh Cheops in about 2900 B.C. at Giza. It occupies thirteen acres of land. It is seven hundred and fifty five feet long and four hundred feet high. It is built of limestone.

Besides Pyramids, the temples at Luxor and Karnak and the Valley Temple of Khatre are among their greatest achievements. The Egyptians developed a system of writing called "Hieroglyphic". This is a Greek term meaning "sacred engraved writing". Ancient Egyptian literature is recorded on paper made out of the papyrus reeds, on the walls of tombs, temples, pyramids and the coffins of mummies.

The Egyptian studied nature with as much

interest as they studied man. They were aware of five planets. They divided the day-night cycle into twelve hours. By observing the Nile and the stars, they evolved a calendar. Their knowledge of mathematics and engineering was highly advanced. They devised the arithmetical operations of addition, subtraction and divisions although they never discovered how to multiply except through a series of additions. They invented the decimal system but they had no symbol of Zero. The ratio of the circumference of a circle to its diameter, they calculated to be 3.16. They learned how to compute the volume of the Pyramid and the cylinder and even the volume of hemispheres.

### Mesopotamian Civilization

The word "Mesopotamia" means "land between rivers". Although this refers especially to the northern part of the valley, in general usage it has been applied to the arch shaped area that lies between the Mediterranean and the Persian Gulf. Some historians called this as the "Fertile Crescent". The river Euphrates and Tigris flow on parallel lines. The valley can be divided into distinct geographical units, so also its history into important periods. The lowermost portion of the valley, near the mouth of the Gulf was known as Sumer, and then lay the land of Akkad. They were together called Babylonia. To the north of this was Mesopotamia, the land of the Assyrians, Chaldeans etc.

Sumerians were the pioneers in the development of the Mesopotamian civilization. They were settled in the lower parts of Tigris and Euphrates valley between 5000 and 4000 B.C. Their actual origin is not known, but they seem to have come from the plateau of Central Asia. The consolidated cultural complex, created as a result of contributions of the Sumerians, Babylonians, Assyrians, Chaldeans and several other small groups, collectively known as the Mesopotamian civilization.

Under the Sumerians, the city-states were ruled by "Patesis". The patesis, the head of the state, combined within himself the religious, military and

economic functions. He was the head priest, commander of the army and superintendent of irrigation. The Babylonians lived under the influence of the Sumerians. They put an end to the local autonomy. All Assyrians were warriors and their conquest extended to distant lands. The army was the most important unit of the state, the commanders were the richest and the most powerful personnel in the kingdom. On the other hand, the Chaldeans tried to receive the Babylonian form the government

In the beginning, a simple economy existed in Mesopotamia. The Sumerian regarded the god, not the king, as the owner of the land. Trade and industry were left to individuals and were not monopolized by the state. The Babylonians made several changes to conduct business. State interference in agriculture, trade and commerce was the most important feature of their time. Trade, banking and industry were all subjected to the state laws. If a deal was made without a written contract or without witness, capital punishment was imposed on the dealers. On the other hand, the Assyrians allowed only foreigners to engage in commercial activities. Agriculture was their main occupation. Medium of exchange were bars of gold and silver instead of coins.

Mesopotamian society was broadly divided into rich and poor. The rich owned land and held high military and administrative posts, the serfs or the slaves served for them. However, the laws of the land recognized three classes, such as, aristocrats, commoners and serfs or slaves. The priestly class enjoyed a high status. The King himself was a priest, not a god. In Babylonia, the women enjoyed a high social status. They enjoyed right to property, divorce and legal claims. The Assyrian reserved their most cruel punishment for anti social activities such as abortion and unnatural behaviour. An Assyrians could marry any number of women and divorce them at his will.

The Sumerians systematized the prevailing laws. The king, Dungi, prepared the first code. This Code was later used by Babylonian king, Hammurabi, and became the basis of the

Babylonians, Assyrians, Chaldean and Hebrew societies. Hammurabi ruled in the 20th century B.C. His significant contribution to history is the legal code. It is engraved on an eight-foot tall column in the cuneiform script. It was set up in the temple of Marduk in Babylonia. Although code of Hammurabi was based on the Principles of revenge, social privileges and trial by ordeal, had many good elements. The code of Hammurabi was a landmark in the history of human civilization.

The Mesopotamian region was characterized by two dominant features (i) beliefs in magic and superstition and (ii) an unconcerned attitude towards life after death. The Sumerians had a plethora of gods. Shamash was their sun god, Enlil the lord of rain, wind, and Ishtar a female deity. The most dreaded of their gods was Nergal, who was believed to be the causer of plague. Marduk held supreme position (Babylonia). Ishtar and her brother and lover Tammuz were other important deities. Superstitious practices, belief in astrology, magic and divination were widely practised. Some of the religious practices and beliefs of the Babylonians declaimed or disappeared during the military regime of the Assyrians.

The Mesopotamians produced a system of writing. They wrote on clay, not on paper and used about three hundred and fifty signs but not alphabets. They also created mythological and historical epics like the famous "Creation" and "Flood Epics". The most impressive work of the Babylonian is the "Epic of Gilgamesh" containing their main myths. They made considerable progress in the field of science. They multiplied and divided numbers, a minute consisting of sixty seconds. They invented a calendar of twelve lunar units, the Pater's wheel, the water clock etc., introduced a postal system for the first time. The Assyrians recognised the twelve signs of the Zodiac. Chaldeans made significant contribution in astronomy. They predicted eclipses and invented the seven-day week and the day of twelve hours. The greatest astronomer, Nabu Rimannu, calculated the length of the year, so accurately that modern scientists have had to correct him only by

twenty-six minutes. In the area of Art, Mesopotamian artists did not excel the achievement of the Egyptians. One of their interesting structures is the temple at Nippur. It resembles Egyptian Pyramids. The Mesopotamian temples are called "Ziggurats". One Ziggurat was six hundred and fifty feet high and it was built in seven stages.



## Chinese Civilization

The original names for China were "Tien Hsia" (means under heaven) and "Chung Kuo" (means Middle Kingdom). Only in about the third century B.C. began to be called by the present name. China can be divided into two major parts, one China proper, in which the Chinese have been living, the other, outer China. Traditions mention that China enjoyed a rich civilization. Between about 18th century B.C. and 8th century A.D. several kings ruled over China, of these, some rulers of the Shang, Chou, Chin, Han and Tang dynasties are famous. The greatest of the early rulers was Shih Huang Ti. Shih ruled between 221 and 210 B.C. Chin was the province over which he ruled. It is from that name China has been derived. He introduced a new administration and abolished the rule of nobles. The greatest achievement of Shih Huang Ti is the construction of a long wall on the northern frontiers. A heavy tax was levied to meet the cost of its construction. The wall has been rebuilt several times since then and a thorough renovation was made by the Mings (1368-1644 A.D.).

The Great Wall is called "Wan-Li-Chang Chi eng", means "Ten Thousand Li Long Wall". The Mingo added about two hundred miles to it. The wall stretches from Shanhaikuan to Kansu about 1250 miles in a straight line or over 1500 miles with all its curves and winding. In height it varies from fifteen to fifty feet. At the base, its width varies from about thirty to twelve feet. Behind the wall, there are permanent camps for the garrisons. The wall extends over plains, desert, and mountains. It has a number of gates and towers. Huge granite blocks were used.

Through a vast country, until the time of Shih

Hunang Ti, China was not united. The head of the state, called "Wang" was both a ruler and a priest. Shih Huang Ti united China and divided the vast land into some forty "Chun" or provinces. Each of these was divided into "hsien" or districts. Over every unit was an administrative head.

It was only from about seventh century A.D. that public examinations became an important feature of the Chinese life. The examination was not only in the Confucian classic but also in history, law, mathematics, poetry etc. The three degrees were "Hsiu Tsai" (Bachelor's degree), "Chii je" (Master's degree) and "Chin Shih" (Doctoral's degree). The first two examinations secured prestige and honour, but not office. Positions were secured after passing the third examination in Peking.

Agriculture was the main occupation of the Chinese people. Cowrie-shells were used as money. Millet was their main produce, though wheat, rice and barley were also produced. Coinage was introduced in China sometime after 1000 B.C. Porcelain and silk were Chinese specialties.

Chinese society was organized on the basis of the teachings of the great philosophers of the country. The most important of them were Confucius. Patriarchal family and class divisions were present in the earliest Chinese society. During the Chou period, the ruler hailed from the upper class.

The Chinese script consists of 40,000 characters, but no alphabets. A sign indicates a word or an idea. Among the notable early works we

the "Spring and Autumn Annals" and "Classic of Change" etc. The Chinese have strong tradition in painting. Every literate had skill with the brush.

The major religions of China are Confucianism, Taoism and Buddhism. Confucius was the greatest of the Chinese philosophers. According to tradition, he lived between 551 and 479 B.C. Confucius emphasized the patriarchal idea and taught that a good society can be built by going back to old ways, by observing ceremonies and by setting a good example. Taoism was another popular philosophy of China. It was founded by Lao Tzu. His main work is called "Tao Te Ching", the Book of the world law and its power. The name "Taoism" comes from Tao, a term used to represent the absolute. Knowledge of the absolute is not to be attained by study or reason but by contemplation. The Taoist identifies themselves with nature. The Taoists opposed rituals, too much of social codes, morals and the intellectualism of Confucius.

### Indus Valley Civilization

Like the Nile in Egypt and Euphrates and Tigris in Mesopotamia, the river Indus in India was responsible for the birth of a world class civilization.

The Indus civilization is also named after two large cities now called Harappa and Mohenjodaro. Harappa is on the left bank of the river Ravi in Punjab. Mohenjodaro is on the right bank of the Indus. Mohenjodaro literally means "the city of the dead".

The two cities of Indus valley were well



Yog. Statue from Harappa

planned. They were provided with main streets and each of these streets was divided into many smaller lanes. Three types of buildings have been found so far which are believed to be (i) houses for residence (ii) large public building (iii) public baths. The large

buildings, it is believed that were either temples or palaces or public halls. Both at Harappa and Mohenjodaro there were citadels. The great bath was constructed within an open courtyard, 160 feet long and 108 feet wide. The towns were provided with facilities required for comfortable living. Beside drainage baths, wide and well-laid streets and arrangements were made for lighting the streets at night. Each part of the city was watched by a guard. A large granary was used to store food.

The inhabitants of these cities appear to have come from different parts of Asia. Four racial types have been identified such as Proto-Australoid, Mediterranean, Mongoloid and Alpine. Agriculture was their main occupation. They cultivated wheat, barley, rice, date-palm, peas, sesamum etc. Bulls, elephants and camels were common domesticated animals.

The Indus people maintained commercial contacts with different parts of India and Asia. Trade links also existed between the Indus valley and Mesopotamia. Perhaps cotton was the commodity that traded. Trade between distant lands shows extensive commercial activities and proper network of communication. Shipbuilding was known to the Indus valley people. Toy industry seems to have been well developed. Textile industry was highly developed and a variety of cotton clothes were produced. An amazing variety of jewellery and metal objects were found in the Indus valley.

The worship of mother Goddess was very popular and was worshiped in various forms. Animal and human sacrifice were made to please goddesses. The most famous of the gods worshipped by the Indus people is a three faced male figure. He is surrounded by animals like elephant, tiger, buffalo, rhino, deer etc. This figure has been identified by research scholars as Shiva-Mahesvara or Pasupati. The worship of Shiva was also popular and a large number of Shivalingas are found. Some abstract symbols like "Swastika" and "Chakras" appear to bear a relation to the religious beliefs. They were perhaps worshipped

Their seals, jewellery and toy reveal the artistic excellence of the Indus people. The Shiva-pasupati, the Yogi and a Bronze-dancing girl are their masterpieces. The figurines of squirrels, dogs, monkeys are fascinating. Besides, they had considerable skill in painting. The Indus people had their own system of measures and weights. They conducted the major part of their trade through barter system. They usually burnt the corpses, but burial was also practised. They had developed their own means of communication. Their scripts has not so far been read.

The discovery of the Indus civilization pushed the history of India back from 500 B.C to about 3000 B.C Indian and foreign scholars believe that the Indus people were Dravidians. Some say that Hinduism originated from their practices and beliefs. One may accept or reject the view but none can dispute that they were among the first to lay the foundation stone of the Indian civilization and perhaps the first in the world to enjoy a highly developed urban life

### Vedic Civilization

Our knowledge of the Indus Valley Civilization is entirely based on archaeological evidences. However, our knowledge of Vedic Civilization is dependent solely on literary works

According to Hindu belief, the Vedas were not written but given or revealed by Brahma to saints. There are four Vedas. (i) Rig Veda (ii) Yajur Veda (iii) Sama Veda (iv) Atharva Veda. The Veda or Sruti is the basis of the Aryan religion. It means knowledge or perfect knowledge. Of the four Vedas, the Rig is the oldest. It was perhaps composed in about 1000 B.C. The Atharva Veda was the last but is the most important for an understanding of the Aryan civilization. The Rig Veda contains prayer and hymns. The Yajur Veda was used by the chief priests who conducted the sacrifices. The Sama Veda contains songs. The Atharva Veda was supposed to have been used by Brahma, the Priest of priests. It contains knowledge about Brahma, moksha, rebirth and also the most important Upanishads, which are elaborate

exposition of the mythical knowledge contained in the earlier Vedas.

The original home of the Aryan is not known. Perhaps it lay between the Danube and the Oxus. Aryans migrated to India about 2000 B.C. The word "Arya" means "noble" or "great". During the Rig Vedic period the Aryans were concentrated in Punjab Region. The Aryan of the Vedic period didn't expand beyond the Jumna in the east. Besides Aryans, the Veda also mentions Dasyus and Dasas. The terms "dasyu" derived from "das" meaning, to lay waste. The Dasyus were civilize natives. The Rajan or Vispati was the chief or the king of the Aryans. He was assisted by a "Senan" (army commander) and a Purohit (Chief Priest). There were assemblies called "Samiti" and "Sabha". The nobles enjoyed great influences. They participated in the Sabha and Samiti and debate politics.

During the Rig Veda period, there were divisions in society. The Brahmin, Kshatriya, Vaisya and Sudra are said to have emerged from the head, breast, arms and feet of the creator respectively. Originally the caste of the man depended on his profession or ability, later it came to depend on one's birth or heredity. In course of time social codes imposed barriers of various kinds and led to caste and class rigidities.

In the family, parents played the most important role. There was a joint family system and father was the final authority patriarchal. Marriage between brother and sister and father and daughter was not allowed, but everyone had freedom to choose his or her partner. Aryan buried or burnt the dead. The custom of Sati was not known. Women, before and after marriage, were participated in dance and music. Vocal and instrumental music was well known and widely practised. Drinking "Sura" was very common, though the evil of drink are clearly mentioned in the Vedas.

The Aryans worshipped nature and believed that behind every force of nature there was a god. For e.g. "Prithvi" controlled the earth and "Aditi" controlled the space beyond the sky. The greatest of the Vedic gods were Agni, Indra, Rudra and

i. Besides these, Surya, Vshas, Yama, Vayu, Varuts are other gods. Rig Veda doesn't mention about temples, but sacrifices played an important role and "Sama" sacrifices very famous.

### Greek Civilization

The early Greeks called their country 'Hellas'. Greeks were the outcome of the fusion of European tribes. About the eighth century B.C. they were divided into three groups, the Dorians, the Aeolians and the Ionians.

Before the Greeks occupied the Aegean region, the Minoans had developed a high civilization around Crete. Between 1100 and 800 B.C., the Greeks assimilated this civilization. They introduced alphabet and money exchange system and established their first mint in 670 B.C. The most remarkable feature of this period was the rise of city-states, or "polis" and rule by the nobility.

With the fall of nobility, the second phase in Greek history began. The most outstanding feature of this period was the rule of the Tyrants. The term "tyrant" means a new style rulers with absolute and unlimited powers. The Tyrants ruled for the benefit of the merchants and artisans. About 500 B.C., the Tyrants declined and paved the way for the establishment of democracy.

Democracy worked through the "Ekklesia" or popular assembly (in which citizens debated and voted) and the "Council of Five Hundred" (a legislative body). In the beginning, Greek society was tribal and the main occupation of the people were trade and commerce. From Homer's work, we learn that the father was the master of the family. Marriage was settled after payment of some oxen to the girl's father. The girl's father, in turn, paid the bride. Men maintained concubines besides wives.

After 700 B.C. the tribal villages developed into city states. In cities, the acropolis was the centre of all social activities. Greeks loved beauty and health more than any other people in the ancient world. Morals, social conventions and even ethical principles were subordinated to the physical pleasures. Though the Greek didn't have fertile land, agriculture was one of the main supports of their life. A banking system was in existence and the temples played an important role in this. The temple of Apollo at Delphi was like an international bank for Greece. Greece had always a low rainfall. To preserve water Greeks built reservoirs, dykes, and canals. The religious life of Greeks was varied and complex. Some were intensely religious and they believed in god, others were extremely worldly and had no belief in god.



the history of world civilization. Socrates laid the foundation of ethics. He argued that man is endowed with the power of reason and with this power he could know the difference between right and wrong. He spread his idea by holding discussions often on the streets. This method of reaching truth through discussion was later called the Socratic method. In 399 B.C. he was accused of corrupting the youth and was ordered to drink a cup of poison or an opportunity to escape from prison. But he preferred to stay and die, because he believed that laws of the state should be obeyed.

Plato was a disciple of Socrates. He recorded Socrates saying in his book 'The Republic' and was the author of 'The Politics' and 'The Laws'.

Aristotle lived in the fourth century before Christ. He studied the constitutions of one hundred and fifty-eight city states of Greece. He believed law should be made by the People and should be basis of government. He was the author of 'Politics', 'Rhetoric', 'Ethics', 'Poetics' etc. It was Aristotle who said that 'man is a social animal'. Besides philosophers, Greece produced many scientists, historians and thinkers in other branches. Greek physician Hippocrates recognised as the father of medicine. The professional obligations he set in medicine are still followed. 'The Hippocratic Oath' is administered to all medical graduates even in modern times. The 'Father of History' also hailed from Greece named 'Herodotus'.

The Greeks built many temples in three main styles: Doric, Ionic and Corinthian. The style of each movement is identified by the characteristics of its pillars. They used sculptures primarily for the purpose of decorating temples. Greek art was an expression of national life; its purpose was not merely aesthetic but political to symbolize the pride of the people in their city and to enhance their consciousness of unity.

Homer is the earliest of the known poets of Greece. He was in 8th century B.C. Though blind, he composed two epics, these are 'The Iliad' and 'The Odyssey'. The Iliad narrates the story of the

Trojan war. The Odyssey bears the story of capture of Troy. Homer was a great poet, he has been also called 'Schoolmaster of Greece'. Other great Greek men of letters are Hesiod, Sappho, Aeschylus, Sophocles, Euripides are notable. The credit for inventing lyrics and drama had been given to the Greeks.

### Roman Civilization

According to a legend narrated by Virgil, Rome was founded by Aeneas, son of a Trojan prince. The prince is said to have come to central Italy along with his followers after the fall of Troy. Rome is situated on the river Tiber in Italy. Etruscan traders occupied this city in the 6th century B.C. and made it the largest and most important of the cities of central Italy. Between 509 and 338 B.C., Roman expansion was modest. But between 338 and 169 B.C., the Romans dominated the Mediterranean World. Between 167 B.C. and 14 A.D. much of the land was conquered, the republic was brought to an end and the Roman Empire was established. The most remarkable event in Roman history after 133 B.C. is the rise of Caesar. His career is summed up in the following message he gave to the Senate: 'I came, I saw, I conquered'. After Caesar, Octavian brought the republic to an end. He assumed title like Augustus (dignity), Princeps (first ruler) and Imperator (Victorious general). Augustan Age has been regarded as the golden age of Roman culture. In its thousand-year's history, the Roman Empire had three types of governments: (i) Monarchy, (ii) Republic and (iii) Absolute Monarchy. In the first phase, the king enjoyed wide powers. However, he was elected by the people. He consulted the council of Elders while making a decision. For over five hundred years Rome was under the republic. In this period the people ruled through their representatives. Though Augustus did not establish an absolute monarchy, but he brought to an end to republic. A century after Christ the control of people over the government gradually disappeared and the emperor became the only authority in deciding appointments, taxes, laws, and wars.

In ancient Rome, there was no body of administrators. The committees and elected officials carried out the administration. Augustus was the first to rule with the help of civil servants. By the second century after Christ, the bureaucracy had been fully evolved. The early Romans had a number of laws, but there were not recorded and systematically administered policies. During 450 B.C. a clash between the rich and the poor led to the codification of Laws. There were called the "Laws of the Twelve Tables". But until 300 B.C. the common man did not get proper justice from the courts. In the second century B.C. the jury system began to function and a class of people called "Jewish consuls" emerged.

In the early Roman family, the father was the head, "pater familias" and master of all the property. Above the families were "gentes". The "gentes" were divided into aristocrats or "Patricians" and commoners or "Plebeians". The struggle between patricians and plebeians led to many economic reforms and constitutional changes. Women occupied a respectable place in Roman society. They appeared in public and participated in their husband's businesses, but they did not enjoy any political rights. The Roman enjoyed life immensely. They travelled extensively and entertained themselves with comic plays. The Public baths built by states accommodated between 1500 and 3000 people at a time. They were called "Thermae". Besides baths, games played an important role in Roman life. Chariot racing, wrestling, duels, fight between man and men or men and animals, were common. There were greatest centre of these sports activities, such as, Circus Maxims, Flavins, and the Colosseum. Agriculture was an important and respected occupation among the Romans. Grapes, olive cultivation, sheep rearing were developed. Romans established magnificent roads and developed shipping. The Mediterranean Sea was dominated by Roman ship. Silk came from China, jewels and cotton from India, spices from east and ivory from Africa. Banking was developed and Roman money circulated throughout the Mediterranean area and else where.

The ancient Roman worshipped their family deities and the spirits that protected their houses. These gods and spirits were worshipped with simple ceremonies by the father in the family. They neither carved images nor built temples. The Roman had their peculiar mysteries. Of these "Lupercalia" and "Saturnalia" were very popular. During the festival of Lupercalia, the worshippers smeared themselves with blood of goats. They danced through the streets and stroked women with bits of skin so that they would become fertile. The festival of Cybele was held in honour of the great mother Cybele. During the course of this festival, the worshippers danced in madness, mutilate their own bodies and fell wounded. These mysteries were gradually superseded by the worship of Mithura, the sun god. From the time of Caesar, the ruler attained a divine status. He was regarded as heaven born and sent to earth to save the people. Even Christianity played an important role in Roman Civilization. The teaching of Jesus became popular first with the fisherman on the Sea of Galilee in Palestine part of the Roman Empire. In the fourth century after Christ, Theodosius made Christianity the religion of the state.

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The Romans made very few scientific discoveries, but they possessed great imagination. The "Caesarean Operation", first performed by

the history of world civilization. Socrates laid the foundation of ethics. He argued that man is endowed with the power of reason and with this power he could know the difference between right and wrong. He spread his idea by holding discussions often on the streets. This method of reaching truth through discussion was later called the Socratic method. In 399 B.C he was accused of corrupting the youth and was ordered to drink a cup of poison or an opportunity to escape from prison. But he preferred to stay and die, because he believed that laws of the state should be obeyed.

Plato was a disciple of Socrates. He recorded Socrates saying in his book "The Republic" and was the author of "The Politics" and "The Laws".

Aristotle lived in the fourth century before Christ. He studied the constitutions of one hundred and fifty eight city states of Greece. He believed law should be made by the People and should be basis of government. He was the author of "Politics", "Rhetoric", "Ethics", "Poetics" etc. It was Aristotle who said that "man is a social man". Besides philosophers, Greece produced many scientists, historians and thinkers in other branches. Greek physician Hippocrates recognised as the father of medicine. The professional obligations he set in medicine are still followed. "The Hippocratic Oath" is administered to all medical graduates even in modern times. The "Father of History" also hailed from Greece named "Herodotus".

The Greeks built many temples in three main styles. Doric, Ionic and Corinthian. The style of each movement is identified by the characteristics of its pillars. They used sculptures primarily for the purpose of decorating temples. Greek art was an expression of national life. Its purpose was not merely aesthetic but political to symbolize the pride of the people in their city and to enhance their consciousness of unity.

Homer is the earliest of the known poets of Greece. He was in 8th century B.C. Though blind, he composed two epics, these are "The Iliad" and "The Odyssey". The Iliad narrates the story of the

Trojan war. The Odyssey bears the story of capture of Troy. Homer was a great poet, he has been also called "Schoolmaster of Greece". Other great Greek men of letters are Hesiod, Sappho, Aeschylus, Sophocles, Euripides are noteworthy. The credit for inventing lyrics and drama had been given to the Greeks.

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of Caesar became popular. Galen, a physician, completed an encyclopaedia of medicine. Romans conducted operation to remove goiters, tonsils and stones.

### The Minoan and Mycenaean Civilizations

Hundreds of years before Athens great civilizations were flourished in the Greek archipelago. Till 1870, it was believed that, Greek history starts with the rise of city states like Athens, Sparta, Thebes, etc. But Homer's Iliad pushed the Greek history into deep past. In 1870 Heinrich Schliemann excavated a western Asia minor site and discovers the ancient city of Troy; again in 1876 AD he dug a deserted Greek site, called Mycenae, and excavated the royal palace of Agamemnon.

The earliest traces of the Minoan civilization after the legendary Cretan ruler Minos, date from the period around 2000 B.C. From 2000 to 1500 B.C. saw the peak of Minoan civilization. Arthur Evans found beautiful stone works, paintings and humanity's first known flush-toilet. Later excavations at another Minoan site, Kato Zakros, unearthed a huge palace with 250 rooms, a swimming pool and parquet floors.

The script of both these civilizations was linear script, divided into two groups Linear A and Linear B. The Linear A is found only in the land of Minos (Crete). But the Linear B is found both in Minos as well as Mycenaean civilizations. The Linear B script was deciphered by Michael Ventris (Englishman) in 1952.

The Minoan state is a bureaucratic monarchy. The ruler was not a warlord. He commanded a large navy, but this was not for war but for trade. However, the king was the chief entrepreneur in the country. The workshops located near his palace. Private enterprise apparently was not prohibited but heavily taxed. The ruler activities including agriculture and foreign trade was closely supervised by the state.

The Minoans of nearly all class appears to have led fairly prosperous lives. There were great social and economic distinction between rulers the

ruled and also few gradations of wealth or status. Slavery was not found. Women seem to have enjoyed equality with men. Crete had female bull fighter and even exceptional female boxers. Women of the upper strata devoted much time to fashion and other leisure activities.

The Minoan delighted in games and sports. Dancing, boxing, running matches, fighting with animals were their main games and sports. They were the first to build stone theaters where processions and music entertained large audiences.

The Minoan religion was matriarchal. The chief deity was a goddess, who was the ruler of the entire universe (sea, sky and the earth). Originally no male deity was worshipped but later a god emerged who was associated with the great goddess as her son and consort. The mother goddess was considered to be the source of evil as well as good. Bull and snake was the sacred animals. Minoan rites and rituals were performed by the priestesses instead of priests in keeping with the female orientation of the entire belief system.

The Minoans were gifted engineers. They built excellent stone roads about 11 feet wide. Nearly all the basic principles of modern sanitary engineering were known to the designers the palace of Knossos. Even they have the knowledge of indoor running water. In the field of painting they were superb. Their paintings were delicacy, spontaneity and naturalism. Most paintings consisted of murals done in fresco, but painted reliefs were occasionally to be found. The painting of 'Parisian woman' is one of the best example of Minoan painting. In sculptural work the Minoan statues of human figures are almost always small than life-size.

However, this civilization was declined after 1500 B.C. They may be supplanted by the mainlanders or may collapsed by the natural calamities like earth quake.

**Mycenaean :** On the other hand, when Minoan were flourishing the island of Crete, around 2200 B.C. Indo-European peoples invaded Greek Peninsula and by 1600 B.C. they had begun to form small cities. Slowly the mainlanders influenced in their cultural development by Minoan

crete. The civilization that resulted from the fusion of Greek and Minoan elements is called Mycenaean after Mycenae the leading city of Greece from 1600 to 1200 B.C. About 1500 or 1400 B.C. the mycenaeans presided over an era of prosperity and artistic accomplishment in crete (Minoans). Around 1250 the Mycenaeans waged their successful war with the Trojans of W. Asia Minor. But between 1200 & 1100 B.C. They were succumbed to the Dorians (primitive barbaric northern Greeks) and they initiated a dark age in the Greek history that lasted untill about 800 B.C.

The Mycenaean kings built themselves ostentatious graves in which they buried their best inlaid bronze daggers and other signs of power and wealth. In the field of art they were less elegant than Minoan. Slave system was practised in their society. In religion they worshiped various gods and goddesses like Zeus, Hera, Hermes and Poseidon. Society was patriarchal. They were excellent in games and athletics and their system of weights and measures were perfect.

### The Early American Civilization

\* We have little knowledge about the earliest human inhabitants of the Americans. A study of skeletal remains indicates that, around 15,000 or 20,000 years ago, groups of people migrated from eastern Asia across the Bering strait to north America and they were chiefly of mongoloid stock, later known as 'red Indians'. Some of them were also come from Polynesia by boat. Slowly they were migrated to central and south America. The growth of settled and populous communities followed the development of agriculture. Corn (maize) was first cultivated in Mexico became the staple crop of the both continents. Historical records for America before the European conquests of the 16th C. are meager and fragmentary. Few writings have survived and many key archaeological sites have not yet been excavated.

The Olmec : Around 1000 B.C. the first advanced culture of America was Olmecs. They had settled on the tropical Gulf coast of Mexico. It led the foundation for all its successors in Meso-American

(Mexico and Central America)

**Teotihuacan :** About 300 B.C. this civilization flourished in the central valley of Mexico. It was religious based society and governed under a rigid theocracy. Teotihuacan was their sacred city. Its artisans created huge stone Pyramids.

**Toltec :** After the Teotihuacan, the Toltec flourished in the north of Mexico about 950 A.D. and Tula was their center of activities. The Toltec absorbed elements of Teotihuacan, but their art was crude and their society was militaristic rather than theocratic. They also practised human sacrifice.

**The Mayas :** The Meso-American civilization reached the highest intellectual development under the Mayas. About 600 B.C. they settled along the Mexican Gulf coastal plain. By the beginning of the Christian era they had reached the highlands of Guatemala and here their culture matured. During 11th and 12th C.A.D it was fused with Toltec elements, so the final phase of Mayan civilization was called Maya-Toltec. Chichen Itza in Yucatan was the center of worship, ceremonial display and artistic production.

The Mayan civilization rested on agriculture and employed primitive methods of cultivation. They had no draft animals, no domesticated animals except dogs and fowls. They have no idea on the wheel. Everything was based on manual power. Common peoples were lived in homes of mud or red with thatched roofs. Stone was used for the rulers buildings and public buildings especially religious. Their artistry is shown in wall frescoes, stone sculpture and wood carvings. polychrome pottery, and beautiful dyed textiles. As scientists, they excelled in mathematics and astronomy. They kept accurate chronological records inscribed on stone calendar pillars.

The Toltecs used a solar calendar with 365 days in a year provision for an extra day every fourth year. The Mayan device went beyond the solar calendar in complexity, sophistication and mathematical symmetry. Their calendar was more accurate than any used in Europe before the reform of the Julian calendar by Pope XII in 1582.

Knowledge of place value arithmetic was

known to them. It was from their calendar and its national scheme that the Mayas evolved the system of writing that constitutes their crowning achievements. The centers of dense population were the sites of temple-crowned pyramids, where sacred rites were performed. The chief deities were spirities of the forest and sky (the planet Venus was 'lord big eye' and the rain god, vital to the securing of crops.

**The Aztecs :** They dominated the central valley of Mexico for a one and half century after the Mayas. Tenochtitlan was its famous city.

Aztec culture was essentially a synthesis of elements derived from others. They used a crude form of picture writing and produced some writing books. They adopted the Toltec solar calendar. Aztec craftsmen were skillful workers in copper, gold and silver and produced delicate mosaics of stone and shell. They continued the same tradition of Pyramid buildings, terracing and sloping. Aztecs were basically a society of warriors. Every man was either a soldier or a priest. Aztec religion also reveals an accent on violence. Human practice also found. One purpose of their frequent wars was to capture humans for sacrifice.

**The Incas :** The greatest territorial extent and most tightly knit society was developed by the Incas of South America. It covered the present countries of Peru, Ecuador, Bolivia and the northern portions of Argentina and Chile. Their ascendancy began about 1100 A.D. and reached its peak in late 15th C. Basically the nation was a confederation of tribes, which in turn were composed of clans. The whole society was effectively centralized under the control of a royal family. The title of the ruler was 'Inca' reputed to be descended from the sun god in order to maintain the purity of his divine lineage, the inca sometimes married his sister, as had been the custom of the ancient Pharaohs (Egypt).

While displaying artistic talent in pottery, textile designs and metal works, the Incas shone particularly as builders on a grand scale. Their capital at Cuzco in Peru was surrounded by mammoth stone forts. They laid roadways over the

mountains constructed bridges, tunnels and aqueducts and operated a postal network with human runners. They were advanced in medicine and especially in surgery. Their surgeons could perform brain operations by cutting through the top of the skull.

They acknowledged several deities but built temples to the sun god. The animal and human sacrifices were performed in the temples. The tomb was also built for the Incas. Sometimes royal attendants and concubines were slaughtered to accompany an Inca to his tomb.

Occupations were generally hereditary and all able bodied persons performed assigned tasks under threat of severe punishment. This coercive social system yielded the benefits of high productivity, full employment, care for the aged and an extremely low crime rate. It was paradise or security but with little freedom. The social body was too dependent on the judgement of a single unchallengeable authority. But this civilization toppled by the Spaniards in the 16th C.A.D.

**Common features :** Similarities in religious beliefs, in techniques and decorative styles. All were based in principle upon kingship groups - clans, tribes and confederations. The universal and deeply rooted belief that land belonged to the community as a whole and should therefore be worked for the common benefit.

On the whole the native American civilizations arising much later than those of the Nile, Tigris, Euphrates, and Indus river valleys, stood not too far below them, at least in potential for future progress. Their extinction under the impact of the totally alien culture must be numbered among the world's losses.

1. Nile Valley Civilization (Egypt) - 4500 B.C.
2. Mesopotamian Civilization - 4000 to 3500 B.C.
3. Indus Civilization - 3000 B.C.
4. Minoan and Mycenaean Civilisation - 2200 B.C.
5. Chinese Civilization - 1000 B.C.
6. Greek Civilization - 800 B.C. to 400 B.C.
7. Roman Civilization - 600 B.C. to 1st C.B.C.
8. Early American Civilizations - 1000 B.C. to 16th C.A.D. ■■

# HISTORICAL EVENTS

## Pyramids

The belief in life after death led to the practice of preservation of the bodies of the dead and providing them with the provision required for the hereafter. One of the results of this idea was the construction of large tombs called "pyramids". The pyramids are not temples but tombs of early kings. More than sixty such structures have been found in Egypt. The largest and greatest of the pyramids was begun by Pharaoh Cheops in about 2600 at Giza. It occupies thirteen acres of land. It is seven hundred and fifty five feet long and four hundred feet high.

## Code of Hammurabi

Babyl (Babylon), part of Mesopotamian civilization, had a famous ruler named Hammurabi in the period of 2123-2080 B.C., made a systematised code of law, which is known as "Code of Hammurabi" in history. It is engraved on an eight-foot tall column in the cuneiform script. It was set up in the temple of Marduk at Babylonia.

The code was based upon the principle of revenge and tit for tat principle. There were distinctions between the purposeful crime and crime unintentional. The code recognized class distinctions and prescribed different principles and punishments for wrongs done by slaves, freemen, aristocrats and wealthy people. The code accepted that by ordeal and the code regulated the social order. Ever all this code was divided into 282 sections and was a landmark in human civilization.

## Punic War

Rome had conquered and annexed the whole Italy. The most important war was the struggle with Carthage, a great maritime empire temporarily founded in the 19 Century B.C. as a Roman colony. There were three wars between them and the last was decisive, which

was fought between 149 and 146 B.C. Seldom has the world witnessed a more desperate and more barbarous struggle. Carthaginians was finally broken and their once magnificent city was razed into the ground. The land was organised into a Roman province.

## Religious War or The Crusades

The wars undertaken by Egyptian Christians to recover the Holy Land from the Muslims is known as the Religious War or The Crusades. One of the chief religious causes of this war was the custom of going on pilgrimages to sacred places. The first of the organized Crusades was not actually started until late in 1095. In between 1095 and 1244, three major Crusades were launched. These expeditions achieved much success in destroying Turkish control over Christian territories. By 1098 most of Syria had been captured and a year later Jerusalem was taken temporarily. In 1187, Jerusalem was captured by the Muslims under Saladin, Sultan of Egypt, before the end of 13 century, every one of the petty states established by the crusaders had been wiped out. There were eight Crusades mainly between Muslims and Christians, to capture pilgrimage places in Arab

## Feudal Regime

Feudalism is defined as a decentralized structure of society in which the powers of government are exercised by private barons over persons economically dependent over them. The society in medieval periods were divided into various classes in Europe into following categories.

**King :** This was one of the highest parts of feudal regime. He used to get certain amount of food production in the form of tax and a small number of feudal lords were under him.

**Duke :** This was one of the powerful lords



and every duke did have Lord Barron. Although dukes were under king but they independently handled the whole affairs of army, justice, law and order and administration.

**Lord Barron :** They were small feudat lords, used to provide military supports to duke and kings. Knights were worked under them.

**Peasants :** This class was divided into three sub-classes, i) Independent peasants, ii) Agricultural labourers, iii) Servants.

### Magna Carta

The feudal revolt reached its height during the reign of King John, who was perhaps not much worse a tyrant than some of his predecessors. He had two powerful enemies in King Philip Augustus of France and Pope Innocent III and lost most of his Possessions in France to Philip and suffered a humiliating defeat at the hands of the Pope. Thereafter, barons took advantage to regain their power and in 1215 they compelled John to sign the famous Magna Carta, a document which is an important part of the British Constitution. The Latin word Magna Carta means 'great charter'. It was not intended to be a Bill of Rights or charter of liberties for the common man. It was a feudal document and was chiefly important at the time as an expression of the principle of limited government, of the idea that king is completely bound by the law.

### Renaissance

The literal meaning of the word "Renaissance" is re-birth. This movement is a landmark in the history of mankind. It directly or indirectly contributed to the end of medieval age. Revival of interest in classical learning, too much emphasis laid on religion, asceticism, a spirit of scientific inquiry also began to spread. These, led men to revolt against the extremes of the Churches, the guilds, monastic, and feudal institutions. Renaissance movement took its birth in Italy, which was divided into three periods. i) Trecento (1300-1400), ii) Quattrocento (1400-1500), iii) Cinquecento (1500-1600). This movement was later spread to other European countries. To some extent the

Crusades and the invention of the printing press in Germany seem to have contributed towards hastening the movement. Renaissance put importance to one area of language, art, culture, religion, education, philosophy, music, painting, literature, geography, social-economic and political areas.

### Religious Reformation Movement

The term reformation has been applied to the 16th century movement in western civilization. In the Renaissance this was essentially a movement against medieval beliefs and institutions. This movement is also known as the Protestant Reformation, which broke out in 1517 against the abuse of the Christian authority and institution. Church used to prescribe codes of conduct, secure and denied anyone a passage to heaven, accumulated vast wealth, built up a huge hierarchy. Church had become less religious and more worldly. The leaders of this movement were Luther and Calvin.

### Counter Reformation or Catholic Reformation

If Protestantism aimed to break away from the Catholic religion, the Counter-Reformation aimed at reforming the Catholic order from within. It began in Spain in the last years of the 15th century and in early years of 16th century. Pope John Paul III convened a Council at Trent. Between 1545 and 1563, it issued decrees which reaffirmed the authority, practices and beliefs of the Catholic order and passed a legislation eliminating abuses. Ignatius Loyola played a vital role and in 1534 and founded the Society of Jesus which was approved by the Pope in 1540. It emphasised education, which immensely contributed to the recovery of the Catholic order.

### Glorious Revolution of 1688 in England

The Glorious Revolution of 1688-89 was an entirely bloodless revolution. A group of politicians from both the upper and middle classes secretly invited Prince William of Orange, his wife Mary, the elder daughter of James II to become joint

ruled England. William crossed over from Holland and occupied London without firing a shot. The English throne was declared vacant by the Parliament and the crown presented to the new sovereigns. The significance of this revolution marked the final triumph of Parliament over the absolute monarchy in England. This is the mother revolution of France, Russia and American revolutions.

### **Intellectual Revolution**

The achievement in philosophy and science in the 17th and 18th century, together with the new attitude constitute the intellectual revolution. Intellectual Revolution had triple paternity. Its fathers were Rene Descartes, Newton and John Locke. The climax of the intellectual revolution in philosophy was a movement known as the Enlightenment, built around a number of significant concepts, such as, reason is the only infallible guide to wisdom. The order of nature is absolutely uniform etc.

### **Industrial Revolution**

The term industrial revolution was first used by the French in the 18th Century and later popularized by Arnold Toynbee, an economic historian of England. The movement was concerned with invention and introduction of machines to do the work that was solely done by men. This revolution profoundly influenced every aspect of human life and change the direction of civilization. A great many changes in agricultural methods and increased scale increase in production. The emergence of two classes called the Capitalists (wealthy) and the Proletarians (workers). The growth of cities and factories changed the social structure of Europe.

### **American War of Independence**

The causes of the War of Independence were mainly economic. In the 17th century, Parliament had restricted the trade between the colonies and Britain to British owned. Stamp Act was passed with a view to increase revenue, which provoked the Americans. The American War of

Independence was a landmark in the history of mankind. The birth of U.S.A was a great loss to imperialism in the 18th Century but a great gain to democracy. "The Declaration of Independence" was a masterpiece of political literature, released on 4 July, 1776, authored by Thomas Jefferson. This contained three significant features. First part declared equality of all men and of their inalienable rights (life, liberty, and pursuit of happiness), second part had twenty six grievances of the colonist against King George II, third part declared independence of the thirteen colonies from Britain.

### **French Revolution**

The three great 'R' with which modern Europe began were Renaissance, Reformation and Revolution. The French had privilege of waging the first revolution against the ancient regime. This began in about 1789 and continued till the end of 18th Century. It aimed at abolishing the wealth and privileges of the nobility and clergy. The rule of the monarch was brought to an end and the rights of the people asserted. French Revolution was started during the regime of Louis XVI, who was inefficient, stayed lavishly and acted irresponsibly. The discontent in social, economic and political field were later inspired by the intellectuals such as Rousseau, Montesquieu, Voltaire. On 14 July, 1789, whole France revolted against the Monarch and National Assembly took control of the country and on 12 September, 1792 France declared a "Republic" and in 1793, Louis XVI and his wife were hanged to death. Equality, Liberty and Fraternity were the major force of this revolution.

### **Battle of Waterloo**

On March 20, 1815 after a journey of triumph across the country, Napoleon entered Paris. Napoleon was not to enjoy his new triumph. On June 12, 1815, Napoleon set out from Paris with the largest army he could gather in the hope of routing the enemy forces before they could invade his country. Six days later at Waterloo in Belgium, he suffered a crushing defeat by the Duke

of Wellington with a common army of England, Dutch and Germans. With lost hope, Napoleon returned to Paris, abdicated his throne and made plans to escape to America. The Coast was heavily guarded and subsequently exiled by the British government to the rocky South Atlantic Island of St. Helena. There he died a lonely and embittered man on 5, May 1821.

### Congress of Vienna

Following the overthrow of Napoleon, an overwhelming desire for peace and order seized the minds of the conservative classes in the victorious nations. In this Congress, six monarch attended. Those are Tsar of Russia, the emperor of Austria, the King of Prussia, Denmark, Bavaria, Wuttemberg. Great Britain was represented by Lord Castlereagh and the "Iron Duke" of Wellington. The basic idea which guided the work of the Congress of Vienna in September, 1814, was the principle of legitimacy. The Pope was allowed to recover his temporal possessions in Italy. Switzerland was restored as an independent nation under guarantees of neutrality. Finland was handed over to Russia. Norway was given away to Sweden and Poland was divided into three and distributed among Russia, Prussia and Austria. Britain got few new colonies and Louis XVIII was put back to throne to rule in conformity with the Charter of 1814. The dynamics and dominant roles at the Congress of Vienna were played by Alexander I and Metternich and France was compelled to pay an indemnity of 700,000,000 francs and boundary was remain same as in 1789.

### The Unification of Italy

Italy was divided into a large number of small state in 19th century. Sardinia was one of the powerful state. Mazzini and Garibaldi played major role in the unification of Italy. Cavour, who was chief of Sardinia state, completed their work without him. It was bound to failure. Cavour support Britain and France against Russia in Crimean War and in 1859, he captured Lombardy and emerged as a Sardinia. By diplomacy and war, Cavour

united the northern portion of Italy and few states shaved their interest of emergence. The main objective of Italy was to gain Venetia from Austria, in 1866, Italy supported Prussia in Austro-Prussian War and Italy was rewarded Venetia. Thus, unification of Italy was completed and Rome became its capital.

### Russian Revolution

The Russian Revolution began in 1916-17. A widespread mutiny of Russian Troops in 1917 made Tsar Nicholas II abdicated, which led to establishment of a provisional government under "Kadets". This is known as the March Revolution. Between the March and November in 1917, this government proved itself a failure. Lenin, leader of Bolsheviks and won the peasants, workers, soldiers to his side and seized Petrograd and Moscow. He established new Bolshevik Government on 15 Oct, 1917. Socialism became the basis of the government and a new Russia was born. This is known as the Bolshevik or the October Revolution. Influence of Marx and Marxist philosophy was influenced in this revolution and later used in governmental machinery such as finance, banking, economy and administration.

### The Unification of Germany

Until 1871, Germany was a divided country. There were over three hundred states, only common element among them was the German language. German nationalism, the Protestant movement stirred educated German and they started demanding the establishment of democracy and unification of Germany. In many states, rulers suppressed their demands and revolutions.

After 1864 Bismarck emerged as a powerful leader and proved that unification of Germany would be possible on the basis of "blood and iron" and began to make progress towards the goal of unity. He destroyed the German Confederation which dominated by Austria. In 1866, Prussia defeated Austria in a famous "Seven day's War". Kassel, Luxembourg, Holstein were emerged with Prussia. In 1870, a war between France and

Germany took place and Germany won this war and captured many areas of France. Germany not obtained only Alsace and a part of Lorraine but was able to draw the South German states into the Confederation. On 18 January, 1871, the King of Prussia was crowned the German Emperor at Versailles and unity of Germany became a reality.

After the World War-II, Germany and its former capital Berlin were occupied by Big Four, the Soviet Union, the United States, France and Britain. In Dec 1946, the areas under the U.S.A. and Britain formed into an economic unit and power restored authority to the German municipalities and states, which was opposed by the Soviet Union in her captured area of Berlin. During this period (1945-48) the Soviet Zone and the Western Zone drifted apart. The Soviet zone became Federal Republic of Germany (FRG) in May 1949, and Western zone was made Federal West Germany.

Again on 3 October 1990, East and West Germany was united, once again. It was just the "Deutschland". Both were agreed to monetary unification, under the West German "Deutsche Mark" beginning in July 1990 and Bonn as its capital, which ended more than 45 years of divided existence.

## China Revolution

Two major forces paved the way for the revolution of 1911 in China. One a half-hearted attempt reforms by the monarchy, the other a wide spread recognition of the efficacy of Western ideologies and methods.

During the Boxer Movement the monarchy had played a dubious role. In the beginning it had encouraged anti-foreign feeling but later, it had gone back and compromised with the Western powers. Empress Dowager conceded a half heartedly to reform social, administrative and education and agreed to introduce a constitutional government. In the meantime, in 1908, Empress Dowager died. In 1911 there was a nation wide revolution on the issue of the construction of railway

line. The Chinese Revolution of 1911 was dominated by Sun Yat Sen and was elected President of the new republic.

## Nazism in Germany

Germany succumbed to Fascism much later to Italy, because the forces of nationalism and militarism were temporarily discredited as a result of her defeat in World War I. Between 1871 and 1914, Germany had risen to lofty heights of political and cultural prestige, and was leading power on the European continent. Nationalism was stabbed in back by socialists and Jews, which wounded pride of Germany patriots. Second important factor leading to the growth of Nazi was the runaway inflation of 1923 and third, the Great Depression.

In 1919, Adolph Hitler, with seven other followers founded the National Socialist German Worker's Party in a beer hall in Munich and they started to reach Berlin. Although Hitler didn't secured majority in 1933 Parliamentary election, afterward the flag of the Weimar republic was hauled down and replaced by the Swastika banner of National Socialism. The New Germany was proclaimed to be the Third Reich. The key to Nazi theory was contained in the phrase of "Blut und Boden" (blood and soil). Hitler wrote a book named "Mein Kampf" in which he expressed basic tenets of Nazi. The growth of Nazism was the major cause of World War II.

## First World War (1914-18)

The root causes of World War-I are found in 19 century history of Europe. France had been humbled in the Franco-Prussian War of 1870. Germany expected her to wage a war of revenge on her. Russian and Austrian interests collided in Balkans. These led to the formation of political alliances, built up of military strength, and ultimately to a conflict over their mutual territorial interests.

In the first World War, on the one side, there were Germany, Austria, Hungary, Turkey and Bulgaria, which was called "The Triple Alliance"

## AROUND THE WORLD

On the other side, France, Britain, Russia, Serbia and other friendly nations, which was called "The Entente Cordiale". America and Italy joined "The Entente Cordiale" in 1917 and 1915 respectively. The World War-I was started on 4 August 1914 and finished on 11 November 1918.

This was led to the division of Europe, the emergence of two blocks, process of weaponisation, series of secret treaties signed, rise of aggressive nationalism. One of the results of the war of 1914-18 was the League of Nations. The idea of an association of nation may be traced back to 17th century, but it was the war that provided the impetus to its realization.

### Treaty of Versailles

Not one, but many treaties emerged from the Peace Conference at Paris. The most important of these was the treaty of Versailles concluded between the Allies and Germany. The map of Europe was once again redrawn and many territorial adjustments were made. Four ancient empires in Russia, Austria, Turkey, and Germany fell either during or after the war and republic emerged in their places. The Allies not only dictated peace but re-generate revenge of defeated Germany was humiliated and reduced in strength as well as in size. Germany was asked to pay a sum of 32,000,000,000 dollars as war compensation. This treaty sowed the seeds of the Second World War.

### The World War II (1939-45)

The conference at Paris neither brought peace and freedom, nor made the world safe for democracy. The peace treaties were in many ways defective and unsatisfactory. They created a larger number of nations. Establishment of a Fascist dictatorship in Hitler became the dictator in Germany, and Fascism in Italy are the results of World War-I.

The Second World War-II began with the German invasion of Poland in 1939. France and Britain declared war on Germany, in which Britain faced humiliating defeat. In second phase of this world war, the Germany army overrun Russian territory and attacked Leningrad and Moscow, but

Russians successfully pushed the German army out of Russia. America changed her attitude and gave successive aids to Britain and Russia. Resultantly world was divided into two blocks. In one block Germany, Italy and Japan were part of Axis Power, and another block, Britain, Russia, America, France were part of "Allies Power". The war did weaken the roots of imperialism. America dropped atom bomb in Nagasaki and Hiroshima, cities of Japan on 9 August, 1945, to weaken her military base and economic sources. After the World War-II, Germany was divided into two parts, East Germany and West Germany. America emerged as a powerful nation. Britain and France were faced economic crisis in spite of success. On 24 October, 1945, the establishment of United Nations Organization (U.N.O.) took place, for maintaining peace and order in the world.

### Emergence of Modern Turkey

After the humiliating defeat of Germany, in the first World War, Turkey was pressurised to accept the demand of victorious nations. The decrepit government of the Sultan, over-ruled by the Allied forces, but revolutionary government of Turkish nationalist determined to prevent the settlement of Sevres to put into effect, which was led by Mustapha Kemal. The forces of Kemal obliterated the Armenia, conquered most of the territory of Europe. Thus, Allies consented to a revision of peace and agreed to accept the Turkish demand to retain all of territories, conquered under Kemal leadership. Mustapha Kemal established republic in Turkey in 1923, and announced the policy of secularism and secular state. He took major decision to speed up modernisation process in Turkey and declared "Ankara", the new capital of Turkey. He transformed the status of "Sick State of Europe" into new Turkey and received "Ataturk" (father of nation) title.

### Treaty of San Francisco

At San Francisco, in September 1951, fifty two nations signed the Treaty of San Francisco. The treaty aimed at disarming, demilitarising, and democratizing Japan.

## Fascism in Italy

Italy was the first European country to repudiate liberal and democratic ideals. The immediate cause of Fascist revolution was the breakdown of Parliamentary government. Fascist movement depended for its success upon the leadership of Mussolini and poses, Machivellian ruthlessness, fiery eloquence and potent attractions, became the leader of Milan Fascio and its membership was made up of young idealists, futurists, racial nationalism and misfits of every description. After 1914, Italy entered the war, the Fascists devoted their attention to combating defeat. Then the period of Squadism, from 1919 to 1921, a campaign to terrorising against all who were considered enemies of the people.

The original platform of the Fascist movement was prepared by Mussolini in 1919, which is surprisingly a radical document, demanded universal suffrage, abolition of the Senate, heavy inheritance, acceptance of the League of Nations. On October 1919, Fascist militia occupied the capital Rome and gained control over the Italian government. There were few important elements of Fascist theory introduced in Italy, such as, Totalitarianism, Nationalism, Idealism,

Romanticism, Authoritarianism, Militarism. In spite of all these, policy of Mussolini made ground for World war-II.

## Red Revolution in China (1949)

After the success of communism in Russia it started spreading in other part of the world. The Chinese Communist Party was established in 1921 in Shanghai and Mao-Tse Tung emerged its leader. Under his leadership, Red Revolution or Communist Revolution came into forefront in China during 1949. After this revolution, China accepted communism and the regime of Chiang Kai-Shek came to an end.

## Iran-Iraq War (1980-88)

This is one of the longest war in world history. Iraq had full control over Set-ul-Arab islands in the Accord of 1913 and Iran got few concessions in 1937. But in 1975, Algiers Accord confirmed equal rights to Iran and Iraq on Set-ul-Arab, which was rejected by Iraq. On 22 September, 1980, Iraq attacked in Khumam city of Iran and then the formal war was started between two neighbouring countries, which lasted eight years. After the intervention of United Nation cease-fire took place. ■■

# WORLD RELIGIONS

The idea of super natural emerged from the inability of the prehistoric men to comprehend the phenomena of nature. When they couldn't understand the vagaries of nature they attributed them to Godly manifestations and from this, over a period of subsequent centuries the institution of organised religion emerged into a reality. A religion, as we have been practising during the course of civilisational process, is a comprehensive and fairly rigid system of tenets, dictates and doctrines about a particular way of life (except Buddhism which is essentially a subtle philosophy and is extremely flexible in nature). The guidelines

about a particular way of life, as embodied in a particular religion, were usually given by a particular person, who is known to the world as a prophet. Almost every organised religion (except Hinduism) of the modern world basically stems from a prophet such as Mohammad, Jesus Christ, Buddha, Mahavira etc. and the growth of religion is gauged by the degree with which the teachings of a given prophet is being transmitted over a period of time, to the people around the world.

The Longman Encyclopedia defines religion as "a system of thought, belief or practice shared by a group that gives members a sense of



apara, and Kali) and the ten incarnation of Jñānu, the "Dasavastaras". Every individual, of whatever caste or varna (Brahmin, Kshatriya, Vaishya and Sudra) he belongs, is allowed to aspire for the acquisition of "Dharma" (religious benefits) "Artha" (Wealth), "Kama" (Love and Sex) and "Moksha" (Salvation). To Heaven go all who have accumulated merit, the others go to hell. Hinduism also emphasizes asceticism, renunciation of worldly life and non-violence, but it does not say that the life of an ascetic is the only way or the best way, to attain the desired fruits.

Hinduism offers four ways of obtaining salvation (Mukti). These are the paths of Meditation (Dhyana-marga) Knowledge or Wisdom (Jñāna-marga), Devotion (Bhakti-Marga) and the correct action (Karma marga). Hinduism evolved the "Dharma-dharma", the law for the householders. According to this law, the life span of an individual is divided into four phases, those of childhood and adolescence (Balya or Brahmacharya), householder (Grihastha), hermit (Vanaprastha) and monk (Sanyasa). The last phase of man "Life" should be devoted to the attainment of "Mukti".

The Practice of Hinduism consists of rites and ceremonies, performed within the framework of the caste system and centering on the main socio-religious occasions of birth, marriage and death. Marriage is a sacrament and not a civil contract. It is a sanskara or purificatory ceremony obligatory for every Hindu. Marriage ceremony is properly ritualised the important rituals in marriage are "Kanyadaan" that is, gift of his daughter to a bridegroom by the father. Eight forms of marriage ceremony are recognised. "Brahma Marriage" is when a father gifts his daughter to a learned man of good character. "Daiva Marriage", if a daughter is gifted to a priest. "Arsha Marriage" the prospective man gifts the father of the girl a bull and cow before marriage. "Asura Marriage" is based on purchase. "Gandharva Marriage" is based on mutual love. "Prajapatya Marriage", when a father gives his daughter to a man, after duly honouring him and expects the couple to perform their dharma together. "Rakshasa Marriage" is based on

abduction and regarded lawful. "Pasacha Marriage", the seduction of a girl who is asleep or intoxicated or of unsound mind. Manu regards "Pasacha" and "Asura" marriages as unlawful.

## Buddhism

The teachings and sayings of Gautama Buddha became the basis of a religion called Buddhism. He is believed to have been born in the Lumbini garden near Kapilavastu (now in Nepal) in the sixth century B.C. Before he became the Buddha (the Enlightened), he was called Siddhartha. The Buddhist traditions mention that when Siddhartha encountered an old man, another afflicted with disease, an ascetic and a corpse, he realized how short lived are worldly passions and pleasures. Soon after, he left his family and kingdom and went into forest to lead a simple and unattached life. This is called the "Great Renunciation". He wandered from place to place to gain knowledge. At Vaishali, he met a teacher who taught him the Sankhya Philosophy. After a long period of meditation, he attained enlightenment under a pipal tree at Uruvela near Gaya in Bihar.



years of age. This is called the "Pannivevana".

Buddha laid down four noble truths, called "Arya Satyas". These were (i) the existence of misery (ii) the causes which produce this misery (iii) the awareness (iv) the way of escaping from misery. The path, according to Buddha, was an eight fold one. It was to be attained through the practice of Right Speech, Action, Means of Livelihood, Exertion, Mind, Meditation, Resolution and Point of view. Of these eight paths, the first three would ensure physical control, the two ensure mental control, the last two, would ensure intellectual development.

The final goal of every Buddhist is the attainment of "Nirvana". Nirvana could be attained neither by prayer nor by sacrifice. It can be achieved by right kind of living and thinking. The Buddha did not speak of God and his teaching constitute, more of a philosophy and system of ethics than a religion. Buddhism affirms the law of Karma by which a person's action in life determine his status in future incarnations. Buddhism is identified with the principles of non-violence. The "Tripitaka" is a collection of the Buddha's teachings, life and philosophical commentaries on the teachings and commentaries.

### Confucianism

Confucianism is more of a religious philosophy or ethical system than a religion in the strict sense. It is known to the Chinese as "Ju Chiao" (teaching of the scholars) and was the dominant force in Chinese thought, education and governance for 2,000 years. Confucians generally conduct their lives according to five cardinal virtues, kindness, righteousness, decorous behaviour, wisdom and uprightness. Confucius taught that the chief ethic was benevolence and one of his prime precepts was "Treat inferiors with Propriety".

Confucianism was founded by Confucius, who was born in the state of Lu, Northern China in 551 B.C. Confucianism is primarily a body of ethics and can be considered as an institutional religion only in that it requires sacrifices to the gods and ancestors. Confucianism does not

restrict itself to any formalised theology. The central concept of Confucian ethics is Zen, which signifies the supreme virtue of love and goodness. There are no churches, Clergy or creeds in Confucianism. With the overthrow of China's monarchy in 1911-12, Confucianism waned and the Communist government of China launched a campaign to wipe out Confucianism.

### Taoism

The name "Taoism" comes from Tao, the term used to represent the absolute. Knowledge of the absolute is not to be attained by study or reason, but by contemplation. The Taoists identified themselves with nature, that urged the acceptance of all things in their natural state and deplored passions, unnecessary inventions, artificial ceremonies and governing activities such as war and taxation.

Taoism was founded by Lao Tse, a Chinese philosopher and prominent religious leader. He worked as a record keeper in the court of the "Chou". His main work is called "Tao Te Ching", the Book of the World Law and its Power. Philosophical Taoism espoused a radical naturalism that urged the acceptance of all things naturally. The Taoists opposed rituals, social codes, morals and intellectualism of Confucianism. They believed that society can be reformed by returning to primitive times. In its teaching, virtue was cast in passive and feminine term. Taoism developed beliefs concerning an after life, which included a heaven and hell, as well as a cosmology that divided all reality into male and female principles or Yang and Yin. Taoism became concerned with magic and also provided the basis for many secret societies.

### Jainism

Jainism was in existence several thousand years before Christ. The beginning of Jainism may be roughly placed in the sixth century B.C. Vardhamana Mahavira, the founder or the consolidator of Jainism, was born in Kundagrama, near Vaisali. At the age of thirty years, he left his

home and wandered as a naked monk for thirteen months. Jaina attained enlightenment on the bank of Rijapalka river, sitting under a 'Sal' tree. After living for seventy two years, he got salvation at Majjhima Pava, now identified with Pavapuri in Patna.

The word "Jina" means conqueror. It is not the conquest of the worldly things, but conquest of oneself, one's desires and attachments. The prophets and saints of the faith are called "Tirthankara". The Jain traditions mention three groups of tirthankaras. "Adinatha" is the first of the "Present" twenty-four tirthankaras. Parsvanatha and Vardhamana Mahavira are the twenty third and twenty fourth tirthankara. There are two groups or sects within Jainism, the Svetambaras and the Digambaras. The term Svetambara means one who is clad in white and digambara means one who is clad with space or with nothing.

Jainism says world is not the creation of any god, it exists because of certain universal laws. Jainism is often regarded as a religion of atheists. Jains believe that life exist not only in humans and animals, but also in object like stones, water, tree etc. The Jiva (life) corresponds to the soul. The soul is corrupted by its contact with matter, hence the role of karma, the cycle of rebirth and death. The highest aim should be to release the soul from material bondage. This is achieved not by the mercy of god but by the effort of the individual himself. A man attains "Nirvana" when he combines right conviction, knowledge and conduct.

The Jain are strict vegetarian. The main rule of conduct is ahimsa or non violence. The Jain are divided into two groups the laymen (Sravaka) and the monks or saints (Sramanas). The lives of both are regulated by strict codes of conduct, behaviour and movement. They take care to avoid any kind of harm to animals, worms and insects. Jainism never spread beyond India.

### Sikhism

It is originally an Indian religion. It was



founded by Guru Nanak, who was born in 1495 A.D. The founder of Sikhism taught that there was a single God, rejecting the many deities of Hinduism and worship of idols. He attempted to eliminate the caste system. The sacred book of Sikhism is "Gurth Sahib". The religious philosophy of Sikhism is mainly influenced by Islam and Hinduism.

### Judaism

Judaism is the religious beliefs and practices and the way of life of the Jews. It is the world's oldest great monotheism and the parent religion of both Christianity and Islam. The name 'Juda' derives from the Latin Judaeus and the Hebrew Yahudi, means the descendent of Judah, who was the fourth son of Jacob. Judaism recognises one god, sometimes called "Elohim" or "Jehorah". The basic prayer of Judaism, called the Shema, begins with "Hear, Israel, the Lord over God, Lord is one". The basis of Judaism is belief in the living God, who is transcendent, omnipotent and just who reveals himself to mankind.

Judaism is strictly monotheistic. God is the creator and absolute ruler of the universe. The emphasis in Judaism is on ethical behaviour as the true worship of God. Men are free to choose to rebel against God's rule. God established a particular relationship with the Hebrew people, by obeying the divine law.

Advent of Judaism was around 1300 B.C. "Moses", the great lawgiver of Jewish monotheism was born in Egypt in a noble family. Sacred book of Judaism is Torah, which is considered one of the divine books, beside Quran and Bible. Judaism elaborate system of laws and rules, such as dietary regulations. Jews have an ordained

clergy and observe the Sabbath, Which runs from sunset Friday to sunset Saturday and is observed with services of prayer in local synagogues

### Shintoism

Shintoism was originated with the begining of the Japense culture and was developed out of primitive nature and ancestor worship Shintoism was located in and around the Japan Shinto, the Chienese term for Japanese "Kam no Michi" means the way of the God Earlier God was symbolised with divine forces of nature, rivers, trees, mountains etc, later on, worship of ancestors, heroes, and deceased emperors were incorporeated There is no sacred book of this belief

Shinto is a set of rituals and customs involving pilgrimages festivals and worship of a host of gods It is a folk religion, limited strictly to Japanese people The highest deity is the Sun goddess, known as the ruler of heaven Gods are worshipped through the sacrifice of rice and rice wine Shinto did not evolve an ethical system of its own but gradually borrowed ethical principles from Buddhism and Confucianism Great emphasis is placed on ceremonial purity and bodily cleanliness Most important among the shrines is the imperial shrine of the Sun goddess at Ise The Yasukuni shrine of the war dead in Tokyo is also well known

### Christianity

Chnstanity is one of the greatest religions of the world It is several centuries younger than Hinduism Buddhism and Confucianism, but it is several centuries older than Islam Christianity is the religion founded by Jesus Christ, but it has its roots in the Judaic tradition The Bible is the hold book of Chnstanity The Bible is divided into two books - the Old Testament and the New Testament. The books of the Old Testament deals with the period before the birth of Jesus Chnst, originally written in Hebrew and partly in Aramaic The New Testament deals with the life and teachings of



Jesus and the Acts of his Apostles which depicts the formative period of Christianity, originally written in Greek or Partly in Aramaic The first four New Testament books tells the life, death and resurrection of Christ which is known as Gospels

jesus man born

Chnst was a historical figure bom about 2000 years ago in a Jewish family at Bethlehem in Palestine He lived a short span of 33 years and his public life covered only the last three years during which he healed people, performed miracles. The most remarkable feature of his life according to Chnstain belief, is that after he was crucified, dead and buried, he rose again on the third day and appeared to his apostles and disciples before ascending into heaven The followers of Jesus came to be called "Chnstains", the terms is dervised from the Greek word "Christos" meaning "anointed" or "Messiah" In A D 45, the followers of Jesus met in a Council at Jerusalem. They decided to spread his teaching and evangelize the world.

The Biblical concept of God is rather complex God is one but has revealed himself in the Bible as three persons - the father, the son and the holy spint The incarnation of Jesus as man, according to the Bible, is a part of the divine plan for the atonment of the sins of mankind Chnstain thought regards man as essentially sinful Even since Adam and Eve violated the divine will, the human race has fallen into this sinful state. Only Jesus Chnst can save.

The Christian belief centres round sin and salvation This method is the observance of the Seven Sacraments. These are Baptism (a process of admitting a child into Christian

nunity), Confirmation (formal admission into church disciplines in childhood), Eucharist (a rite in which bread and wine are taken). This symbolic act of identifying oneself with the flesh and blood of Christ. Penance (repenting one's sin), Holy Orders (the priesthood) and Matrimony (marriage). In the beginning the Christians gathered for their worship, but in due course, one day a week called the "Lord's day" (Sunday) was aside for the worship. The core of the worship consists of religious instruction, preaching, prayer and the breaking of bread. The breaking of the bread or the "Lord's Supper" has a special significance in Christian worship. This practice follows what Jesus did at his last supper with his disciples on the night before his death. This incident symbolises Christ's suffering and death on the cross, which is the central act of Salvation, saving mankind from sin. This part of the worship is known as *Communion* or *Eucharistic rite*. Generally, the religious services of Christians are mainly aimed at worshipping God in spirit and in truth, that is worshipping the Father through Jesus in the power of the Holy Spirit.

Since the fourth century Christianity has been guiding the political and social life of the Western people. The medieval age was dominated by two institutions which were produced by Christianity - the church and the monastic order. Those who accept the church, are called monks.

Protestantism comprises the Christian churches that separated from Rome during the Reformation in the 16th Century initiated by an Augustinian monk, Martin Luther. Protestantism was finally applied to followers of Luther, who protested at the Diet of Spire (1529) against the decrees which prohibited all further ecclesiastical reforms. Subsequently, Protestantism came to mean rejection of attempts to the God's revelation to earthly institution and return to the Gospel and to the words of God as sole authority in matters of faith and practice.

## Islam

The word "Islam" means "Surrender to God". Those who submitted to this concept became Muslims. Mohammed founded Islam in the seventh century after Christ. The motherland of Islam is Arabia. Arabia was peopled by nomadic tribes called Bedouins who roamed the desert with their flocks. Each tribe was divided into clan and each clan followed its own culture. However, all of them spoke a single language and went to Mecca for pilgrimage. The famous gods of their gods were "Al Mana", the god of fate, "Alat", a mother goddess and "Al Uzra" the planet Venus. Before the advent of Islam, Arab society was riddled with many evils and reached to the point of degeneration.

Mohammed was born about 570 A.D. in Mecca. He is believed to have been a descendant of Abraham, the founder of Judaism. Mohammed received the revelation of Allah, compiled in the Quran, which is the holy and sacred book of Muslims. It gives explanation of Quranic teaching in the "Sunna" a collection of tradition (moral sayings and anecdotes). Both are reinforced by the principle of Ijma, which states the belief that a majority of Muslims cannot agree in error. The Quran, the Sunna and the Ijma are three foundations of Islam. Islam does not profess to be a new religion formulated by Prophet Mohammed but is the continuation of all former religious practices.

Islam is strictly monotheistic and absolute submission to God's will. Islam is radically theistic and the essence of its creed is simply stated that "There is no God but Allah, the Mohammed is the messenger of Allah". God is omnipotent, powerful, eternal and is ever-qualified with the attributes



of supreme greatness. Every muslim is expected to fulfil five duties (i) believe in Allah, the God (ii) Pray namaz, five times a day (iii) fast during Ramzan (iv) give alms to the poor (v) Visit Mecca at least once in his lifetimes.

After the death of Prophet Mohammed, four schools came into being to interpret and provide guidance in dispensing justice. (i) Abu Hanifa (AD 699-766), a school of Islamic jurisprudence and opined that when Quran and Sunna are silent about a problem. This school emphasised the role of "Qiyas", reasoning by analogy. (ii) Malik Ibn Anas (713-95AD), this school of thought says Quran, Sunna and Ujma (all religious scriptures) should become the basis of the interpretation of new situation. (iii) Ash-Shafi (767-820AD), traditions of Prophet Mohammed should become the main source of the interpretation instead of individual opinion. (iv) Ahmad Ibn Hambal (780-855 AD), this school minimised the role of Ijma and Qiyas in the interpretation of law and stressed the Quran, Sunna as the primary roots of Islamic law.

Followers of Islam are divided into various sub divisions in terms of sects, namely "Sunni" and "Shiah". "The Sunnis" are the ardent followers of the faith in the Sunna or Traditions. They make the position of the Khalifa. It is selection or choice is made by selected people of the community. They assert that Mohammed never intended that a Khalifa should succeed him in any other way. But they differ from the Shai. This is another sect of Muslims, who only differ from the Sunis in terms of hereditary right of the descendents of Mohammed to be the only legitimate "Khalifa". They say that the three Khalifas - Abu Bakr, Omar, and Osman were imposters and usurpers, and only Ali and his heir should have followed the Prophet.

There are four main bases of the Muslim social institutions - family, marriage, divorce, and institution governing inheritance. Islam has given full importance to family and laid down certain rules and regulation to maintain its order. The main objective of family the preservation of human

society and civilisation. The whole socio-cultural structure is based on it. Ouran and Shariah gives basic guidelines for maintenance of social organisation.

Islam forbid non-marital sex in all its form. But marriage is a substitute which enables men and women to fulfill their urge which is quite natural and procreative. The Islamic view of marriage is that it is a means of reproduction and not the means of satisfying sexual desire. This is made clear by a very short saying of Prophet "Marry and Generate". The Arabic word for marriage is "Nikah" which means uniting. Quran declares marriage as a contract between husband and wife. At the time of marriage, a particular amount is settled for the women, which is called "Mehr". Islam does not allow women to marry more than one husband at a time. From pre Islamic times, there exists another type of marriage called "Muta Marriage". The object of marriage was to provide a man with a wife when he is away from home for any reason. In Iran and other Shiate countries, this is a very common practice to take a woman for a fixed period. However, all sects of muslims agree that this type of marriage is unlawful and illegal except "Akbanshahs".

In Islam, Marriage is just civil contract. The Prophet framed the laws of marriage and divorce in such a way that it ensures the permanence of marriage without affecting the freedom of individual. Although Quran permits husband to pronounce divorce, yet a lot of limitation are put upon the existence of this right. Women are given an equally balanced position regarding divorce. The wife can ask her husband to give her a divorce but she has to return back "Mehr" (the dowry). The technical term for the wife-right to divorce is called "Khula". A check was imposed on the right of the property owner. If a man dies behind a son and a daughter, the property of the deceased will be divided into three parts, out of which two parts will be given to the son and one to the daughter. The wife is entitled to one fourth, if the husband dies childless, otherwise, it is one eighth. ■■

# POLITICAL THOUGHT

## Liberalism

The central values of liberalism are freedom and individualism. Liberalism is the only philosophy which focuses against anything standing against the most cherished value of human liberty. It stands against of any kind interference in any walk of life whether moral or religious, social or political.

Liberalism is a modern thought, though we can trace back its source to the middle ages. In the middle ages the economy was based on agriculture and the feudal lords used to subjugate farmers and the farmers had a miserable life. In the eighteenth century, there was Industrial Revolution in Western Europe and a new class of industrialists emerged who controlled the economy and gradually tried to control the politics of the country. This wealthy class opposed all laws that restricted the accumulation of wealth. Gradually it was accepted that there should be no restriction in the economic affairs of individual's life. This idea of freedom from all restriction in the economic fields became the foundation of the idea of liberalism. This age again brought the individual and his welfare in the forefront. Individualism was defended. It was stressed that individual should have the power of self-determination. The other worldly superstitions of the church were rejected and the worldly values were given importance. Superstitions were replaced by conscience and rational thinking. This was phase of "Renaissance" which stressed on individual freedom and paved the way for liberalism.

The modern age started with Reformation. Martin Luther and Calvin the religious reformers opposed the religious supremacy of Pope. Philosophers like Locke, Mill, Spencer and Green opposed absolute power of the absolute monarchy in Europe. They emphasised on individual freedom and paved the way for liberalism. The

most important source of the development of the philosophy of liberalism was the philosophical ideas of different thinkers of this age. Though these thinkers differ in their ideas, they agree on different aspects of liberalism. James Mill was the first thinker who made a complete formulation and a practical working out of liberalism. He pleaded freedom of thought, expression, speech, writing and publishing.

Liberalism is very effective even today. Liberalism is the symbol of personal liberty. It supported the revolution in France and America. It was regarded as opposed to conservatism. It also opposed socialism and communism. Liberalism is not a synonym of individualism. Individualism stress on the negative aspect of the state. But liberalism went further and accepted the positive nature of the state. It now supports the role of state for collective welfare and not merely personal welfare. State has the right to interfere in individual's life for public interest. It is opposed to centralised authority. Liberalism is more concerned with the problems of political bondage of individual in a state and of the form of state where democracy is concerned about the problems of equality, social cohesion and welfare policy. Liberalism is found to be the combination of the ideas of Democracy and Individualism. It respects democratic ideas. Liberalism does not tolerate authoritarianism, monarchy, dictatorship and socialism where individual's personality is sacrificed in the name of social welfare. Liberalism stresses that the individual will build his own future. It envisages constitutional government with the ideals of tolerance, secularism, liberty and equality. However it does not ignore social welfare. While accepting state as the means, it limits individual freedom to the extent of ensuring collective welfare. Above all, it seeks to establish a harmony between individual freedom and development of his personality and social

welfare. In modern times liberalism and democracy are synthesised, the former calling for liberty and the later for equality.

Today the liberalism aims at the establishment of a Liberal society based on the principles of secularism, liberty, equality, fraternity, rights and justice. It wants to establish a limited liberal democratic states with representative institutions based on the consent of the people

### Socialism

Socialism centered on the idea of a community in which the means of production (land, factories, capital) are collectively owned and in which production is democratically planned and controlled for the benefit of all. Socialist ideas were developed mainly during the 19th and 20th centuries. Blane, a reformer and scholar gave reformist socialist ideas and supported the economic principle, "from each according to their ability and to each according to his work. He addressed to the working class and appealed to them for the overthrow of the capitalist system and its replacement with the socialist system. As against this revolutionary philosophy various brands of evolutionary socialist ideas developed in the European world. The most important trends which emerged are German social democracy (revisionism), English parliamentary socialism, French syndicalism, English fabianism and Guild Socialism. Hence socialism is a broad concept and it does not have a precise definition. Socialism is of many kinds and these are described below

**State Socialism** State socialism is synonymous with collectivism. Here the state is all powerful. It is regarded as an end in itself. In this form of socialism all powers are concentrated either in one man or in one institution. Sometimes one man may dominate the entire political scheme. It accepts other principles of socialism. It is a negation of democracy.

**Fabianism** . It believes in establishment of socialism through evolutionary method. It aims at the promotion of the general welfare of society through peaceful and democratic methods.

Progress is, therefore, very slow. Fabianism was for the first time organised in Great Britain towards the last part of the 19th century. A group of intellectual like G.B.Shaw, Grohom Wallas, Annie Besant, Sidney and, G.B.H. Cole etc. formed the Fabian Society in Great Britain. Fabianism justified socialism from economic, moral and personal grounds. It believes in the improvement of the conditions of the labourers of the society. They advocated that the rent should be paid for the utilisation of the land, advocated the transfer of industrial capital to the community as far as possible and attacked the monopoly of industrial capital. On the whole, fabianism advocated the elimination of social injustice. They believed in the dignity of labour.

**Syndicalism** : While fabianism is known as British socialism, Syndicalism is known as French socialism. Originally the word "Syndicate" meant trade union in the French language. Thus, Syndicalism theory aims at a revolutionary organisation of trade unions against the capitalistic system of production. Syndicalism advocates that production should be controlled by trade unions. It gives emphasis on labour, represents a revolutionary trade movements. Syndicalism in fact, means trade unionism.

The states is to function through syndicalist organisations. Syndicalists criticise that the state is a capitalist institution. But they do not want the complete abolition of the state. The aim of the Syndicalists is to give the labour due recognition. It is anti-democratic and anti-individualistic, believes in revolutionary and violent means. Syndicalists resort to violence, strike, boycott and other pressures. It vehemently criticise the selfishness of the capitalists. It has some influence over Great Britain and other European countries in the beginning but it has ceased to be a powerful source in recent times.

**Guild socialism** : Guild Socialism is one of the distinguished kinds of socialism. It has its birth in Great Britain. It is termed as the intellectual child of English Fabianism and French syndicalism. It advocates the establishment of guilds for the

emancipation of workers. A guild is an autonomous organisation in industry. It wants to follow wage system and suggests to form self-government by workers in industries. These guilds should be managed in democratic ways. Their working is supervised by the National Guilds. It attacks the unnecessary state-interference and avoids extremism of syndicalism. Transfer of ownership of the means of production and distribution is given to the state in this system. Writers like Arthur, Joseph and Penty are considered as the founding-father of Guild Socialism. G.H. Cole had given it a systematic and integrated approach. He is the leading advocate of Guild Socialism.

**Democratic Socialism :** Democracy and Socialism seem to be antithetical. While democracy lays emphasis on individual, socialism puts emphasis on society. In the 20th century an attempt was made to combine democracy and socialism. This experiment first started in India. The Government of India aims to achieve democratic socialism. Democratic Socialism stands for the achievement of socialism through democratic means. This phrase has become a catch word of Indian National Congress after its Bhubaneswar session in 1964. India is now experimenting democratic socialism. Democratic socialism opposes selfish individualism. It gives emphasis on co-operation instead of competition. It upholds both the rights of the people as well as the state, it advocates the limited state control over production, it upholds the principles of equality and social justice. It is a halfway between democracy and socialism. Which includes some features of Gandhianism and Marxism. It is still in experimental stage.

**Communism :** Communism is an extreme form of revolutionary socialism. Karl Marx's revolutionary philosophy is known as Communism. It is also known as "Scientific socialism". It believes in materialistic interpretation of history and theory of class-war. For communism matter decides all events in society. The society is divided into two classes, namely, the rich and the poor. The state is an instrument of class exploitation. It perpetuates the

interest of the rich in the society. Thus in a perfect society the state should be abolished. Communism removes the defect of evolutionary socialism. No social change is possible without revolution and violence. Individual is not allowed to have freedom in a communistic society. Communism is a hope to the workers. It aims at an egalitarian and classless society.

All of the above mentioned philosophies except Communism/Marxism may be termed as "Evolutionary Socialism". The main contention of evolutionary methods are democratic reforms and parliamentary institutions; progressive legislation, nationalisation and progressive taxation by the state; the economic struggle of the working class trade unions and by capturing political power by elections. Evolutionary Socialism accepts the Marxian critique of capitalism to some extent but does not agree with the Marxian theory of revolution for the overthrow of the capitalism. It has faith in the capacity of the states to bring socialism through gradual reforms.

## Marxism

Marxism is a dialectical theory of human progress and provides a theory of social change and a scientific philosophy which helps in understanding the law of social development. It also provides the revolutionary programme for the emancipation of the exploited class and suggests revolutionary methods for changing the present society. It wants to establish society on a rational basis, a society in which man shall not be exploited by man. It aims at a society in which all will live in peace, harmony and comfort, enjoy true freedom and liberty and will have the full opportunity to develop their potentialities and personality. In fact this society - the Marxist call it the Communist society - shall be a classless and stateless society.

The Marxian philosophy came into being as a reaction to the failing of liberal ideology and the evils which were perpetuated by capitalism. Marxism challenged the whole liberal system which was based on private property, market model of



society, unbridled individualism and capitalist model of production. Marxism is not only revolt against the capitalist system but also a sound alternative to that system. Capitalism, its exploited socio-economic system, private property, inequality and exploitation were condemned by many socialists before Marx. Earlier, the utopian socialists like Thomas More, Fourier, Robert Owen, Saint Simon etc had also denounced capitalism in their philosophy. But they could never provide the means of ending capitalism or provide an alternative sound system. It was Karl Marx who with his intellectual treatises and active struggle provided both the means to wipe out capitalism and an alternative system for it. Today Marxism has been greatly enriched not only by the rediscovery of the old texts written by Karl Marx but his contemporary Engels. The contribution of other thinkers and revolutionaries of the Marxist model are F. Mehring, K. Kautsky, G. Plekanov, V.I. Lenin, R. Luxemburg, L. Trotsky, N. Bukharin, J.V. Stalin and Mao-Tse-Tung.

The main principles of Marxian philosophy are as follows:

1. **Dialectical Materialism** : It implies the process through which development or growth takes place and the basic principle of development. Karl Marx adopted this dialectical process from the philosophy of Hegel.

**Materialistic Interpretation of history or Historical Materialism** : For Marx the determining factor of the development of history is the productive force. The material or the economic factor is mainly responsible for all historical changes. Marx interpreted all historical events by means of materialistic interpretation of history. According to him all political institutions, social systems, trade, industry, art & craft, customs & practices, religions and every aspects of life of any country of any age are determined by the material conditions prevailing there.

**Theory of class struggle** : According to Marx in every society in every age there exists two conflicting economic classes. The economically strong class has a tendency to exploit the

poorer class. History gives the knowledge that these two classes constantly clash to possess economic and political power. This class continues even today. Society today is divided into two distinct groups - capitalists and working class fighting a mortal battle with all their powers. Marx concluded that the result of the organised struggle of the working class against the capitalists would be the victory of the working class, end of capitalism and establishment of the dictatorship of the proletariat. It will be the rule of the working class. This class will concentrate all its power and crush the remnants of capitalism. It will be the rule of one class only.

4. **Theory of surplus value** : The theory of surplus value has been explained by Marx in his book "Das Kapital". He explained to show that how the capitalists exploit the labour. The capitalists do not give just wages to the workers. They pay according to their will and monopolise the profit. According to Marx the actual value of a commodity is determined by the cost of labour. But the market value of the commodity is higher. Thus the difference between the actual price and the market price of a commodity is the profit monopolised by the capitalists. Marx calls this surplus money, monopolised by the capitalists as "Surplus Value". Hence the surplus value is the difference between the value of the wages which a labour produces and which he actually receives.

In the synthesised way it may be said that the Marxism aims at the establishment of a "Classless" and "Stateless Society", a real socialist society. The two basic ingredients in the Marxist theory to achieve its objectives and aims are "Class struggle" and the "Revolution".

### Fascism

The 20th century saw the emergence of the most heinous, anti-democratic, anti-humanitarian, reactionary and counter revolutionary form of dictatorship, known as Fascism. Fascism is a kind of dictatorship but all dictatorships are not fascist.

icism is a blood stained theory and it is hated and feared by people throughout the world.

The term fascism has been derived from the Italian word "fascio" (a bundle of rods) which implies unity, discipline and strength. Generally speaking, fascism is the term which applies to the regimes of Mussolini and Hitler which were established in 1922 and 1933 in Italy and Germany respectively. Aggressive nationalist, undemocratic, communal, anti-communist regimes, movements and parties are usually called fascists. Fascism is a reactionary and counter-revolutionary theory and its object is to safeguard the crisis-ridden capitalist socio-economic and political order. It is opposed to democracy, human right, socialism and any kind of revolutionary change. Mussolini was the father of fascist doctrine.

Fascists were opportunists and they adopted those principles which appeared popular and abandoned those which were unpopular. It was the main reason why fascism secured support from different classes and groups. Fascism was supported by military class because it stood for discipline. Wealthy industrialists supported it because they were afraid of the Bolsheviks. The lower middle class also supported fascism because they were jealous of big business. Even the psychopaths and criminals supported them because they could use their talent. Thus fascism was a theory which attracted across various social and economic groups.

Fascism is anti-intellectualism or irrationalism that means reason cannot give a satisfactory answer to the problems of the universe. Fascism assumes that masses of men are irrational and they are guided by impulse and instinct and not reason. The politicians need not appeal to the reason of masses and since man one emotional force and coercion should be used as a supreme method of politics. This belief naturally led the fascists to believe in the Theory of Elite.

Fascism is action-oriented and it has no faith in theory but in action. Mussolini said "My programme is action and not talk". Fascists are realists not theorists. They glorified war. For them war is the sign of good health of the state.

Mussolini said "War is to man what maternity is to woman". Fascists believed that nation has a personality and will of its own apart from that of individuals. Individuals have their meaning only in the context of nation. Individual is a mere abstraction when separated from nation. The mass media like press, periodicals and radio should be used to engrave the glorification of nation on the minds of the people. State is an end in itself. Like Idealists, the Fascists consider state is prior to the individual. Individual can be sacrificed at the altar of the state. In case of conflict between the interest of the state and that of the individual, the priority shall be given to the interest of the state. Individuals are just like cells in the body. As cell has no importance outside the body similarly individual has no importance outside the society.

Fascists did not believe in equality. Mussolini used to say that Italians are the pure race and this elite race has a right to rule over the others. On the basis of racial superiority, Mussolini justified his policy of expansion of Italy. Mussolini believed in imperialism. He wanted to militarise the whole nation. He encouraged Italian women to produce as many children as they could so that sufficient fodder may be available for cannons. Fascists consider violence as a virtue. They use violence not only in home affairs but also in international affairs. Fascists believed in the theory of corporate state and applied it to the organisation and controlled association of capital and labour. Each association will have monopoly in its trade or occupation. The state would be the arbiter to decide the disputes between the capital and labour.

Fascism is against individual freedom. For fascists, Liberty is not a right but a duty. Individual freedom lies in the obedience of the state. Instead of traditional slogan of Liberty, Equality and Fraternity, the Fascists raise the slogan of "Responsibility, Discipline and Hierarchy". Fascists are anti-democratic and they opposed the theory of majority rule.

## Democracy

Throughout history the definition of democracy

and the best means of giving it a political effect have been disputed. It is generally believed, the rule by majority people rather than a single or minority person. J.J. Rousseau for the first time argued for democracy and he was giving more priority to direct democracy. However, with the passage of time western nations gave priority to 'liberal democracy' by giving freedom of the press, elections are regular and free, opposition parties can campaign against the government, constitution at the apex, women suffrage were allowed. Gradually 'democratic' ideals extended from political sphere to economic, involving either public ownership or at least a minimum standard to living for all. America is the oldest democracy and India is the largest democracy in the world. But the most striking feature of present day democracy is not a single state is following the 'set process' of democratic ideals. They are moulding or re-moulding according to their requirement of governance. That's why perhaps, it is said, democracy is a cap which is fit to everybody's head

## Capitalism

Capitalism is an economic system in which the greater part of the means of production and distribution are owned by private individuals or institutions run for profit. There is competition and a free market, in which prices & consumer decisions determine the allocation of resources. More specifically, capitalism is used to refer to the combination of political arrangements and social life associated with this economic pattern in modern industrialised countries, specially in the West. Development of capitalism traced through agrarian capitalism, commercial capitalism, industrial capitalism and financial capitalism. In the 20th century, capitalism created a vast transformation in credit, manufacturing and distribution system around the world. This effect drastically changed the social and cultural aspects of the world. Every capitalist economy exhibit a public sector of industries which are state owned or controlled and some attempt at national planning. ■■

# WORLD GEOGRAPHY

## The Structure, Composition and Formation of Earth

**The Lithosphere :** Lithosphere refers to the strong and rigid portions of the earth including the solid crust and upper mantle in which different forms of landforms are found. Beneath the lithosphere lies the asthenosphere, which is a weak and soft layer.

**Internal Structure of the Earth :** The earth is almost a spherical body, made up of concentric zones. The most important zones include

**The Crust :** The outer layer of the earth is known as the crust. Its thickness ranges from 16 to 40 km. The crust is thicker beneath the continents than beneath the oceans.

The crust is made up of two layers, an upper

lighter layer called the Sial (Silicate+Aluminium) and a lower denser layer called Sima (Silicate + Magnesium). The average density of the earth's surface is less than 3 gm/cc. The inner part of lithosphere is partly molten.

**The Mantle :** Below the crust of the earth is a thick layer called mantle. This layer extends upto a depth of 2900 km. The mantle consists predominantly of solid rock made up of silicates of magnesium and iron and displays plastic properties.

**The Core :** Beyond a depth of 2900 km. lies the core of the earth. This is made up of dense material consisting of iron and nickel. This metallic core of the earth has an average density of 11 gm/cc. This core of the earth is believed to be a reason for the earth's magnetism.

The physical state of matter in the earth's interior is very different from that on the surface of the earth. Temperature increases at an average rate of  $1^{\circ}\text{C}$  for every 32 metres of depth below the earth's surface. The temperature at the centre of the earth may be around  $2000^{\circ}\text{C}$ . The pressure is so high but even at this temperature the metals in the core remain solid and rigid.

**Mohorovicic Discontinuity** : The line of separation between the mantle and the crust is known as the Mohorovicic discontinuity.

**Gutenberg-Wiechert Discontinuity** : The line of separation between the mantle and the core is called Gutenberg - Wiechert discontinuity.

**Continental Drift** : The theory of continental drift expounded by Alfred Wegener in 1915, holds that portions of the original continent which comprised the entire landmass of the world underwent a series of horizontal displacement before the present continents were formed. According to his theory, about 280 million years ago, the entire landmass formed one super continent, called Pangea.

**Plate Tectonics** : Tectonics means the study of rock structures involved in the earth movement. Plate tectonics deals with the movement of plates which comprise the lithosphere of the earth. Below the surface the solid upper crust consists of plates of large size which are in constant motion - horizontal and vertical - and relative to one another. Major collision between plates lead to the occurrence of earthquakes in historical period and changes in the shapes of the continents and oceans in geological periods.

**Materials of the Earth's Crust (Rock and Minerals)** : Rocks are made up of individual substances which are called minerals and found mostly in solid state. Each mineral usually contains two or more simple substances called elements, of which the whole earth is made.

## Classification of rocks

The crustal rocks are classified on the basis of mode of formation, physical and chemical properties, location etc. On the basis of mode of

formation the rocks are divided into three categories (i) Igneous rocks (ii) Sedimentary rocks (iii) Metamorphic rocks.

**Igneous rocks**: These rocks are formed due to cooling, solidification and crystallisation of molten earth materials known as magma. They are also called parent or primary rocks. Igneous rocks are roughly hard rocks and water percolates with great difficulty. They are granular or crystalline rocks but variations exist in the size, form and texture of grains. They do not have strata and are less affected by chemical weathering. They don't contain fossils. The number of joints increases upwards. They are mostly associated with volcanic activity. They are classified on several grounds as mentioned below—

(a) on the basis of silica content

(i) Acidic Igneous rocks have more silica e.g. granites

(ii) Basic Igneous rocks have less silica e.g. gabbro

(b) On the basis of chemistry and mineralogical composition

(i) Felsic Igneous rock (felspar is dominant)

(ii) Mafic Igneous rock (magnesium and ferrous is dominant)

(iii) Ultra mafic Igneous rock (peridotite and dunite is dominant).

(c) On the mode of occurrence

(i) Intrusive Igneous rocks— They are cooled and solidified below the surface of the earth. They are further divided into plutonic and hypabyssal igneous rocks. Plutonic rocks cool deep beneath the earth e.g. granite. Hypabyssal rocks cool just beneath the earth surface e.g. batholith, Laccolith, phacolith, Lapolith, sills, dykes, etc.

(ii) Extrusive igneous rocks are formed due to cooling and solidification of hot and molten lava at the earth's surface e.g. basalt, gabbro, obsidian.

**Sedimentary rocks** : These rocks are formed due to aggregation and compaction of sediments. These rocks contain fossils of plants and animals. They cover 75 percent of surface area of the globe. However they form only 5 percent of

and the best means of giving it a political effect have been disputed. It is generally believed, the rule by majority people rather than a single or minority person. J.J. Rousseau for the first time argued for democracy and he was giving more priority to direct democracy. However, with the passage of time western nations gave priority to 'liberal democracy' by giving freedom of the press, elections are regular and free, opposition parties can campaign against the government, constitution at the apex, women suffrage were allowed. Gradually 'democratic' ideals extended from political sphere to economic, involving either public ownership or at least a minimum standard for living for all. America is the oldest democracy and India is the largest democracy in the world. But the most striking feature of present day democracy is not a single state is following the 'set process' of democratic ideals. They are moulding or re-moulding according to their requirement of governance. That's why perhaps, it is said, democracy is a cap which is fit to everybody's head.

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such as block mountains (horsts), rift valleys etc. A rift valley is a long, relatively narrow depression formed by the sinking of a block of land between two more or less parallel faults. Examples : East African rift valley, Narmada and Tapi valleys.

**2. Exogenetic forces :** They are also called denudational or destructional forces. These forces affect weathering, erosion and depositional activities. They also affect the planation processes. The erosional process is affected by running water, ground water, glaciers, sea waves etc. These processes form erosional and depositional land forms.

## Volcano

A volcano is a vent or opening usually circular in form through which heated materials consisting of gases, water, liquid lava and fragments of rocks are ejected from the highly heated interior to the surface of the earth.

Volcanic eruptions are closely associated with several interconnected processes such as (i) the gradual increase in temperature with increasing depth at a rate of  $1^{\circ}\text{C}$  per 32m due to heat generated by degeneration of radioactive elements inside the earth. (ii) origin of magma because of lowering of melting point caused by reduction in pressure of overlying rocks (iii) origin of gases and water vapour due to heating of water (iv) ascent of magma due to pressure from gases and vapour (v) occurrence of volcanic eruption. These eruptions are closely associated with plate boundaries. Volcanoes are classified under different schemes.

### 1. Classification on the basis of periodicity of eruptions.

- Active volcano e.g. Etna, Stromboli, Pinatubo etc.
- Dormant volcano e.g. Visuvius, barren island volcano (Andamans)
- Extinct volcano e.g. where no indication of future eruption is estimated.

### 2. Classification on the basis of the mode of eruption.

- Central eruption type or explosive type e.g. Hawaiian type, Strombolian type, Volcanian type.

pelean type, Visuvius type.

- Fissure eruption or quiet eruption type e.g. lava flow or flood, mud flow and fumaroles.

## Topography produced by volcanoes

- Cinder or Ash cone :** They are of low height and are formed of volcanic dust, ashes and pyroclastic matter. Its formation takes place due to accumulation of finer particles around the volcano vent.
  - Composite cones :** They are formed due to the accumulation of different layers of various volcanic materials.
  - Parasite cones :** When lava comes out of the minor pipes coming out of the main central pipe, parasite cones are formed.
  - Basic lava cone :** It has less quantity of silica in its lava.
  - Acidic lava cone :** It has more silica in its lava.
  - Lava domes :** These are formed due to accumulation of solidified lavas around the volcanic vents.
  - Lava plugs :** They are formed due to plugging of volcanic pipes and vents when volcano becomes extinct.
  - Craters :** The depression formed at the mouth of a volcanic vent is called a crater. When it is filled with water it becomes a 'crater lake' e.g. lake Lonar in Maharashtra.
  - Calderas :** Generally enlarged form of craters is called caldera. It is formed due to subsidence of a crater.
  - Geysers :** They are intermittent hot springs that from time to time spout steam and hot water from their craters.
  - Fumaroles :** It is a vent through which there is emission of gases and water vapour.
- Distribution :** Volcanoes are unevenly distributed over the earth and vast areas have no active volcanoes at all. There are no volcanoes in Australia. In Asia, they are largely concentrated in Circum-Pacific region and Africa has a few of them. Thus, the Pacific Belt is truly known as the 'ring of fire' because of the largest number of active

## AROUND THE WORLD

the volume of earth's crust. They contain several layers or strata but these are seldom crystalline rocks. They are not found in massive form. They are seldom found in original and horizontal manner. They may be well consolidated, poorly consolidated and even unconsolidated. They are characterised by different size of joints. Most sedimentary rocks are porous and permeable. They are classified under different schemes.

### On the basis of nature of sediments

- (a) Mechanically formed or clastic rocks e.g sandstones, conglomerates, clay rock, shale, loess.
- (b) Chemically formed sedimentary rocks e.g gypsum, salt rock.
- (c) Organically formed sedimentary rocks e.g limestone, Dolomites, coal, peals etc

### On the basis of transporting agents

- (i) Argillaceous or Aqueous rocks
  - (a) Marine rocks
  - (b) Lacustrine rocks
  - (c) Riverine rocks
- (ii) Aeolian rocks e.g Loess
- (iii) Glacial sedimentary rocks e.g till, morains

**Metamorphic rocks :** Metamorphic rocks undergo complete alteration in the appearance of existing rocks due to change in mineral composition and texture through temperature and pressure changes. They are classified as mentioned below

**Contact or thermal metamorphism** Here metamorphism occurs when the mineral composition of the surrounding rocks is changed due to intense heat e.g limestone is changed to marble

**Regional or Dynamic metamorphism** Here pressure plays an important role so that rocks are altered in their forms in an extensive area.

By the above said processes clay may be metamorphosed into slate, limestone into marble, sandstone into quartzite, granite into gneiss, shale into schist, and coal into graphite

## Earth Movements

The forces which affect the earth's movement are involved in the creation, destruction, recreation

and maintenance of geomaterials and various types of relief features of varying magnitudes. On the basis of origin these forces are divided into (i) Endogenetic forces and (ii) Exogenetic forces. While endogenetic forces create relief features on the earth's surface, the exogenetic forces through their erosional and depositional activities destroy them and help in the planation process.

### Endogenetic forces

These forces are divided into sudden forces and diastrophic forces

- (a) **Sudden forces** : Events like earthquake and volcanic eruption occur suddenly and the resultant forces work very quickly. They are constructive forces as they create cones, lakes, plateaus, lava plains etc.
- (b) **Diastrophic forces** : They include both vertical and horizontal movements.

(i) **Vertical movement** : They include emergence and subsidence of land masses. Emergence may occur due to upliftment of whole continent or part thereof or upliftment of coastal land of the continents. Submergence may occur when the land near the sea coast is moved downward or is subsided below sea level.

(ii) **Horizontal movement** : These forces work into two ways (i) In opposite direction - This includes tensional or divergent forces which create faults, rupture, fracture, cracks etc. (ii) Towards each other - this includes compressional or convergent forces which create folding, warping etc.

**Folding** : It is the process whereby the rock strata are bent into a series of arches (anticlines) and troughs (syncline) as a result of horizontal earth movements which cause compression within the crust. The anticlines of the folds generally form the mountains and the adjacent synclines form the valleys. Most of the mountain ranges of the world consist of fold mountains. For example - the Alps, the Andes, the Rockies and the Himalayas.

**Faulting** : It is the process by which the tensional earth movements under the effect of considerable pressure create a fracture in the earth's crust. Faulting gives rise to relief features

groups and systems.

Mountains are classified under various schemes which are mentioned below :

i. On the basis of location

(i) Continental mountains

(a) Coastal mountains e.g. Alpine mountain chain, Appalachians, Rockies, eastern and western ghats etc.

(b) Inland mountains e.g. Ural, Vosges, Black Forest, Himalayas, Appalachians etc.

ii) Oceanic mountains e.g. Mauna Kea volcanic mountain of Hawaii islands, Antilean mountain.

2. On the basis of mode or origin

(i) Tectonic mountains

(a) **Folded mountains** : These mountains have originated due to compressional tectonic forces and have been thrown up to form fold mountains e.g. Himalayas, Andes, Alps etc.

(b) **Block mountains** : They are originated by tensile forces leading to formation of rift valleys. They are also called horst mountains e.g. Black Forest, Vosges, Vindhya, Satpura, Sierra Nevada etc.

(c) **Dome mountains** : They are originated by magmatic intrusions and upwarping of crustal surface e.g. lava domes, batholith domes etc.

(d) **Mountain of accumulation** : They are originated by accumulation of volcanic material e.g. cinder cones, composite cones etc.

(ii) Circum erosional or Relict mountain e.g. Vindhya ranges, Appalachians, Satpura, eastern and western ghats Nilgiris, Parasnath, Girnar, Rajmahal.

On the basis of period of origin

a) Pre-cambrian mountain e.g. Laurentian mountain, Algonian mountains, Kilauean mountains etc.

(b) Caledonian mountains e.g. Appalachian Scandinavian, Appalachians, Satpura, Mahadeo etc.

(c) Hercynian mountains e.g. Vosges, Black Forest, Variscan mountain, Altai, Tien Shan etc.

(d) Alpine mountains : They were formed during tertiary period e.g. Rockies, Andes, Alps, Himalayas, Atlas etc.

## Important Lines on the Map

1. **Isopleth** : A line drawn on the map along which the value of a particular phenomenon is uniform. Isobar, Isohyets are examples of isopleth.
2. **Isonomal** : Any line representing continuous value on maps.
3. **Isotherms** : Imaginary lines passing through places of same mean temperature
4. **Isobars** : Lines of equal pressure.
5. **Isobaths** : Lines of equal depth in the sea.
6. **Isobronts** : Lines joining places experiencing thunderstorm at the same time.
7. **Isochrones** : Lines joining places located at equal travel time from a common centre.
8. **Isogonals** : Lines joining places with the same magnetic declination.
9. **Isosalines** : Places having equal salinity in the ocean.
10. **Irymes** : Lines of equal frost.
11. **Isohyet** : Lines passing through the places of same mean rainfall.
12. **Isohypse or Contour Lines** : Lines joining places of equal elevation from datum plane (generally near sea level).
13. **Isonif** : Isopleth of amount of snow.
14. **Isophene** : Isopleth of seasonal phenomenon for example flowering dates of plants
15. **Isopotential** : Surface to which artesian water can rise.

## Landforms

### Fluvial landforms

**River valleys** : Due to erosional work by running water of rivers, their sides are eroded to form U-shaped or V-shaped valleys. The valleys are formed in the youthful stage capacity of a river. During mature stage of a river the valley is of U-shape because of greater deposition there is less erosive work and hence valleys become broad and are transformed into a U-shaped valley.

**Pot holes** : The kettle like small depressions in the rocky beds of river valleys are called as potholes.

**Plunge pools** : Potholes of much bigger



volcanoes along the coasts of America and Asia around this region. Iceland, Sicily and Japan are the biggest volcanic islands in the world. Most of the volcanoes in the world occur along linear belts or lines of weakness marked by intense folding and faulting.

## Earthquake

An earthquake is a vibration or oscillation of the surface of the earth caused by a transient disturbance in the elastic or gravitational equilibrium of the rocks, at or beneath the surface.

The intensity of energy released is measured on a scale called Richter scale.

The point where the earthquake originates is called focus which is also known as hypocentre.

The place on the ground surface which is perpendicular to the line of focus is called 'epicentre'.

Seismic waves are recorded by an instrument called 'seismograph'.

Earthquakes are classified on the basis of causative factors.

1. Natural earthquakes : They are caused by endogenous forces.

(i) Volcanic earthquake : They are caused due to volcanic eruptions e.g. Earthquakes caused by explosion of Krakatau volcano in 1883 and Etna volcano in 1968.

(ii) Tectonic earthquake : They are caused due to dislocation of rock blocks during faulting e.g. 1906 earthquake of California and 1923 earthquake of Sagami Bay, Japan etc.

(iii) Isostatic earthquake : They are triggered due to sudden disturbance in the isostatic balance at regional scale due to imbalance in geological processes e.g. near active mountain building zones.

(iv) Plutonic earthquakes : These are deep focus earthquakes generally located between 240 to 670 km deep.

2. Man made earthquakes or artificial earthquakes : They are caused due to man made activities like pumping water and mineral oil underground, blasting of rocks, nuclear explosion, storage of huge volume of water in reservoirs etc.

Examples of earthquake due to construction of huge dams include Koyna earthquake of 1967 and Hoover dam earthquake of 1936.

**Tsunamis** : These are seismic waves caused by the earthquakes travelling through sea water. They generate high sea waves and cause great loss of life and property e.g. in Papua New Guinea in July 1998.

**Distribution** : About 68% of all the earthquakes are observed in the vast region of the Pacific Ocean known as a "ring of fire" and closely linked with the region of crustal dislocations and volcanic eruptions. Chile, California, Alaska, Japan, Philippines, New Zealand constitute the ring of fire.

Around 21% of the earthquakes occur in the Mid-World mountain belt extending parallel to the equator from Mexico across Atlantic Ocean to the Mediterranean sea from Alpine-Caucasus ranges to the Caspian, Himalayan mountains and the adjoining belts. The earthquakes in India are at present mainly confined to the Himalayan region and its foot hills. They are also felt in the Ganga valley. There have been a number of violent earthquakes in India in historic times. For example

The Kutch Earthquake - 1819

The Assam Earthquake - 1897

The Bihar Earthquake - 1934

The Kangra Earthquake - 1905

The Assam Earthquake - 1950

The Maharashtra Earthquake - 1993

## Mountains

**Types of Mountains** : Mountains may have several forms. A *mountain ridge* is a system of long, narrow and high hills. A *mountain range* is a system of mountains and hills having several ridges, peaks, summits and valleys. A *mountain chain* consists of several parallel long and narrow mountains of different periods. A *mountain system* consists of different mountain ranges of the same period. A *mountain group* consists of several unsystematic patterns of different mountain systems. *Cordillera* consists of several mountain ranges.

**holes.** Coalescence of closely spaced sink holes into one larger hole is called 'swallow hole.' Further erosion leads to formation of depressions called 'dolines.' Extensive depression are called 'uvala.' Most extensive depressions are called 'poljes.'

**Sinking creek :** When surface water disappears through numerous sink holes located in a line, a sinking creek is formed.

**Blind valley :** It refers to the valley of that surface stream which disappears in limestone formation through a solution hole.

**Caves :** These are formed due to corrosion of limestone by groundwater above the water table of the ground water.

**Ponores :** The vertical pipe like chasms that connect the caves and swallow holes are called 'ponores.'

## Arid landforms

**Zeugen :** In areas which have parallel layers of hard and soft rocks, the lower soft portions are eroded fast and narrowed and the upper portion of hard rocks look like tables called 'zeugen.'

**Mesa and Butte :** Mesa is a flat table like landmass with a very resistant horizontal top layer and very steep sides. Continued denudation through ages may reduce mesas in area so that they become isolated flat topped hills called 'Buttes'.

**Ventrifacts or Dreikanter :** These are pebbles, faceted by sandblasting and resemble the shape of Brazilian nuts.

**Siefs or longitudinal dunes :** These are long narrow ridges of sand lying parallel to the direction of the prevailing winds and resemble the teeth of a saw.

**Playa :** Sometimes water collects in a depression or a desert basin does not completely disappear and a temporary lake called 'playa lake' is formed.

**Bajada :** It is a depositional feature made up of alluvial material laid down by intermittent streams.

**Pediment :** It is an erosional plain formed at the base of the surrounding mountain scarps.

## General Landforms

**Plateau :** Plateaus are extensive upland areas characterised by flat and rough top surface and steep walls which rise above the neighbouring ground surface at least for 300 m.

According to geographical situation the plateaus may be classified into:

1. Intermontane plateaux e.g. Tibetan plateau, Bolivian plateau, Mexican plateau, Iranian plateau, Anatolian plateau, Columbian plateau etc
2. Piedmont plateaux e.g. Appalachian plateau, Patagonian plateau etc.
3. Continental plateaux e.g. Deccan plateau, Ranchi plateau, Shillong plateau, etc.
4. Coastal plateaux e.g. Coromandal coastal upland of India.

On the basis of size and shape the plateaux are classified as (i) dome shaped plateau (e.g. Chotanagpur plateau) (ii) Dissected plateau (e.g. Deccan plateau) (iii) Step like plateau (e.g. Kaimur plateau) (iv) Flat topped plateau (e.g. Tibet plateau) (v) Rejuvenated plateau (e.g. Patlands of Ranchi and Palamau, Missouri plateau).

**Plain :** Plains can be defined as flat areas with low height. They may be above or below sea level e.g. coastal plains of Netherlands.

The plains may be classified as under

1. Formation of plain due to deposition of sediments over submerged coastlands e.g. coromandal coastal plains.
2. River deposited plains e.g. north Indian plains
3. Piedmont alluvial plain e.g. Bhabar plain

## Aurora, Australis and Borealis

The aurora is the beautiful and varied display of lights seen at night in the regions of high latitude. The aurora, known as Aurora Borealis in the Northern Hemisphere and Aurora Australis in the Southern Hemisphere, occurs in the upper atmosphere between 100 km and 300 km height.

The light occurs where charged particles from the solar wind enter the upper atmosphere. These particles are deflected by the earth's magnetic field and descend through the atmosphere towards both poles.

size are called plunge pools

**River meanders :** It refers to the bends of longitudinal courses of rivers.

**Oxbow lakes :** The lakes formed due to impounding of water in the abandoned meander loops are called oxbow or horse shoe lakes.

**Alluvial fans and cones :** They are always formed at the base of foothills due to accumulation of materials because there is abrupt decrease of channel gradient here.

**Natural Levees :** The narrow belt of ridges of low height built by the deposition of sediments by the spill water of the stream on its either bank is called natural levee or natural embankment.

**Delta :** They are classified into

- (i) arcuate delta : They are like an arc of a circle e.g. Nile delta, Indus delta, Niger delta etc.
- (ii) bird foot delta : They resemble a bird's foot e.g. Mississippi delta
- (iii) Estuarine delta : They are formed due to filling of estuaries of rivers e.g. Narmada and Tapi, Ob, Hudson etc.

### Glacial landforms

**Hanging valley :** The valleys of tributary glacier which join the main glacial valley of much greater depth are called Hanging valley.

**Tarn :** A rock basin formed at the floor of the cirque basin is filled with water and a lake is formed called 'tarn'.

**Cot, aretes and Horn :** The recession of cirques sharpens the mountain divide. These sharpened peaks resembling saw-teeth are called 'aretes'. The gap formed due to cutting of head-walls because of intersection of two steep sided cirques is called 'col'. A pyramidal peak formed due to recession and intersection of three or more cirques is called 'horn'.

**Nunatak :** The higher peaks and mounds surrounded by ice from all sides are called Nunataks.

**Crag and tail :** A peculiar landform having vertical eroded steep upglacial side and tail like appearance with lower height downglacial side is called 'crag and tail'.

**Rouche moutonnees :** These are asymmetrical hillocks, mounds or hills having one smoothly moulded with gentle slope and the steepened and craggy lee side.

**Kettles :** They are depressions on outwash plains.

**Hummocks :** large kettles are dotted numerous low mounds called hummocks.

### Marine landforms

**Cliff :** Steep rocky coast rising almost vertically above sea water is called sea cliff which is very precipitous with overhanging crest.

**Wave cut platform :** Rockcut flat surface in front of cliffs are called wave cut platforms.

**Capes and bays :** On exposed coasts, action of waves erodes the coast line irregularly forming capes and bays.

**Caves :** prolonged wave attack on the base of the cliff excavates holes in regions of local weakness called caves.

**Arch :** when two caves approach one another from either side of a headland and unite they form an 'arch'.

**Stack :** Further erosion by waves leads to collapse of the arch. The seaward portion of the arch will remain as pillar of rock called 'stack'.

**Stump :** Further erosion will lead to formation of stump which is just visible above sea level.

**Geos and ghoups :** A natural shaft which pierces through a cave and forces water or spray out of the hole is called 'gloop' or 'blow hole'. When continuous erosion leads to collapse of the roof of the cave, a long inlet or creek develops called 'geos'.

### Karst landforms

**Clint, grikes and taples :** The highly corrugated and rough surface of limestone lithology characterised by low ridges and pinnacles, narrow clefts and numerous solution holes called variously as clint, grikes or tapies.

**Solution holes :** Chemically active rainwater dissolves limestones and numerous solution holes are formed. Smaller holes are called 'sirs'.

energy at the rate of two calories per square per minute.

**Conduction** : Transfer of heat through matter by molecular activity is called conduction. When two bodies of unequal temperature are in contact with one another, there is a flow of energy from the warmer to the cooler body. This transfer of heat continues until both the bodies attain the same temperature or the contact is broken.

**Convection** : Transfer of heat by the movement of a mass or substance from one place to another is called convection. Convective motions are possible only in liquids and gases.

**Radiation** : It is the direct heating of a body or an object by the transmission of heat waves. This is the only mechanism in which heat can travel through the relative emptiness of space. Hence, the vast amount of energy coming to and leaving the earth are in this form. Radiation from the earth is called terrestrial radiation and it is in the form of long waves.

**Heat Budget** : The average temperature of the earth remains rather constant. It has been possible because of the balance between the amount of incoming solar radiation and amount of Terrestrial radiation returned to space. This balance of incoming and outgoing radiation has been termed the earth's heat budget.

**Temperature Anomaly** : Temperature varies even along the same parallel of latitude because of the factors like altitude, land and water contrasts, prevailing winds and ocean currents. The difference between the mean temperature of any place and the mean temperature of its parallel is called the Temperature Anomaly or Thermal Anomaly. It therefore, expresses deviation from the normal.

**Inversion of Temperature** : Air temperature also varies according to the altitude. At higher altitudes air becomes less dense, it is unable to absorb heat, resulting in colder air temperature. The normal drop of temperature with height is known as normal lapse rate which is  $6.4^{\circ}\text{C}$  per km, on an average. But, this can vary according to geographical position, season and time.

## Main Plateaux of the world

Plateaux	Location
Tibetan Plateau	Central Asia
Mongolian Plateau	North central China and Mongolia
Indian Peninsular	India
Asia Minor plateau	Turan
Arabian Plateau	South West Asia
Anatolian Plateau	Turan
Indo-china Plateau	Myanmar, Laos, Cambodia, Vietnam, Thailand
Australian Plateau	Australia
Madagascar/Malagasy Plateau	Madagascar
South African Plateau	South Africa
Abbyssinian Plateau	Ethiopia
Ethiopian Plateau	Ethiopia
Meseta Plateau	Ethiopia
Brazilian plateau	Brazil
Bolivian Plateau	Bolivia
Mexican Plateau	Mexico
Chiapas Plateau	Mexico
Yukon Plateau	Alaska
Alaskan Plateau	Alaska
Columbian Plateau	USA
Great Basin Plateau	USA
Colorado Plateau	USA
Greenland Plateau	Greenland

day. Temperature inversion is the situation where there is increase in temperature with height. Before beginning to drop into the normal lapse rate. In cases where the temperature remains the same with increase of altitude, the layer of atmosphere is called Isothermal.

## Wind

Wind can be defined as air in motion. The principal cause of winds is the difference in pressure. Air always moves from areas of high pressure to those with low pressure.

The slope of the pressure from high to low

4. Flood plains e.g. Khadar and Bhangar plains
5. Lava plains e.g. plains of New Zealand, Iceland etc.
7. Glaciated plains e.g. north west Eurasian plain.

**Lakes :** Lakes may be defined as non-permanent features of static water on the land surface. The lakes can be classified as under

1. Fresh water lakes e.g. the great lakes of USA
2. Saline lakes e.g. great salt lake of Utah, Caspian sea, Dead Sea, lake Van etc
3. Glacial lakes e.g. lakes of Norway, Sweden and great lakes of USA
4. Fluvial lakes e.g. wular lake, Marigot lake, Mayeh lake
5. Volcanic lakes e.g. lake Nicaragua, Crater lake of Oregon

### The Atmosphere

The vast expanse of air which envelopes the earth all round up to a height of several hundred kilometers is called the atmosphere. It contains life-giving gases like oxygen for man and animal and carbon dioxide for plants

### Composition of the Atmosphere

Pure dry air consists mainly of Nitrogen (78%), Oxygen (21%), Argon (0.93%), Carbon dioxide (0.03%), Hydrogen, Helium and Ozone. Besides water vapour, dust particles, smoke, salts are also present in air in varying quantities. As a result, the composition of air is never constant and varies from time to time and place to place.

Of the many constituents, carbon dioxide, dust particles, water vapour and ozone are of great importance for the earth's climatic conditions.

### Structure of the Atmosphere

The atmosphere consists of almost concentric layers of air with varying density and temperature. Density is highest on the earth's surface and goes on rapidly decreasing upwards. The atmosphere can broadly be divided into 5 layers and these include

**Troposphere :** The lowest thick layer of the atmosphere extending to an average altitude of

10 km, varying between 18 km above the equator and 8 km above poles. It is a region of cloud, water vapour and weather.

Temperature decreases at an average rate of  $6^{\circ}\text{C}$  per km of height above sea level. The temperature at the end of the troposphere around  $80^{\circ}\text{C}$ . The boundary line separating troposphere from stratosphere is known as Tropopause.

**Stratosphere :** The region above the tropopause extending up to 50 km above the earth known as Stratosphere.

Temperature ceases to fall with the increase in height at this level. The air temperature at the tropopause is about  $-80^{\circ}\text{C}$ . over the equator and about  $-45^{\circ}\text{C}$  over the poles.

In the lower part of the stratosphere i.e. up to height of 20 km, temperature remains constant. Afterwards it gradually increases up to a height of 50 km because of the presence of ozone layer. Clouds are almost absent and there is little dust or water vapour. The air movements are almost horizontal.

**Mesosphere :** It exists over the stratosphere extending up to a height of about 80 km above the earth. Temperature sharply decreases with height and reaches the lowest level of  $100^{\circ}\text{C}$  at the top. It is a zone of chemical reactions. Bulk of the meteors are destroyed in this region.

**Ionosphere :** It is located between 80 to 400 kms. It is an electrically charged layer. Radio waves transmitted from the earth are reflected back to the earth by this layer. Temperature starts increasing with the height because of reflection from the Sun.

**Exosphere/Thermosphere :** It is the outermost layer of the atmosphere extending beyond the ionosphere above a height of several hundred kilometres. This layer is extremely rarefied and gradually merges with the outer space.

### Global Radiation

**Insolation :** It is the incoming solar radiation and it is received in the form of short wave rays. The earth's surface receives the radiation

The monsoon winds blow over India, Pakistan, Bangladesh, Burma, Sri Lanka, Arabian sea, Bay of Bengal, South-Eastern Asia, Northern Australia, China and Japan.

**Summer Monsoon :** During summer, a thermal or heat low is developed over Southern Asia in the lower levels of the atmosphere. It is a cyclone with a considerable air flow. From the Indian Ocean and the South Western Pacific, warm humid air moves northward and north westward into Asia passing over India, Indo China and China. This air flow accompanied by heavy rainfall constitutes the Summer monsoon in South-East Asia.

The Winter monsoon is a gentle drift of air in which the winds generally blow from the north east. Retreating monsoon cause sporadic rainfall especially in the north-eastern parts and Tamil Nadu coastal areas of India. Outside India, in the Eastern Asiatic countries such as China and Japan, the winter monsoon is stronger than the summer monsoon.

## Local Winds

There are winds that develop as a result of local conditions in temperature and pressure of air - They affect small areas, their occurrence relates to the lowest levels of Troposphere.

**Tomado :** An extremely violent whirlwind, covering a small area - sometimes wind velocity exceeds 300 km per hour. It occurs frequently in the Mississippi basin of the USA and Sahara.

**Loo :** A very hot and dry wind (hot wave) in the North Western India and Pakistan which blows from the west in the afternoon of May and June and may cause sunstroke.

**Mistral :** The cold wind which originates over the snow-covered mountains of Alps and blows towards the Mediterranean sea.

**Chinook and Foehn :** Warm and dry local winds blowing on the leeward sides of the mountains are called chinook in the USA and Foehn in Switzerland.

**Harmattan :** The warm and dry winds blowing from north-east and east to west in the eastern

parts of Sahara desert are called harmattan. Similar winds are called 'brickfielder' in Australia, 'blackroller' in USA, 'Shamal' in mesopotamia and persian gulf and 'norwester' in Newzealand.

**Sirocco :** It is a warm, dry and dusty wind which blows in northerly direction from sahara desert and after crossing mediterranean sea reaches Italy, Spain etc. Similar winds are known as 'Khamism' in egypt, 'gibli' in Libya, 'Chilli' in Tunisia, and 'simoon' in arabian desert.

**Bora :** It is an extremely cold and dry north-easterly wind blowing in the adriatic sea.

**Blizzard :** It is a violent, stormy, cold and powdery polar wind laden with dry snow in Siberia, Canada and USA.

**Purga :** It is a snow laden cold wind in Russian Tundra.

**Bise :** It is a cold wind in France.

**Levanter :** It is a strong easterly cold wind in Spain.

**Pampero :** It is a cold wind in a pampas region of south America.

**Santa Ana :** It is a warm, dry wind in USA.

**Yamo :** It is a warm dry wind in Japan.

**Zonda :** It is a warm wind in Argentina.

**Tramontane :** It is a warm wind in central Europe.

**Jet Stream :** The high-speed winds which blow from the west in the upper atmosphere over mid-latitude areas are called Jet streams. It has an important influence in the formation of weather conditions.

**Temperate Cyclones :** These rise in the belt of westerly winds and are caused by the mixing of cold air from the polar regions with warm, humid air of tropical regions. They usually bring prolonged rain to coastal areas and often very windy weather. The winds blow out in spirals in the clockwise direction in northern hemisphere and anti-clockwise direction in the southern hemisphere. However, they do not cause much havoc as tropical cyclones.

## Precipitation

It is the process by which condensed water

winds. Owing to the earth's rotation, all the winds are deflected to the right in the northern hemisphere and to the left in the southern hemisphere. This is referred to as the Ferrel's Law and the forces occurring due to the rotation of the earth is called the Coriolis force.

## Types of winds

- i) Planetary winds or Prevailing winds; Trade winds, Westerlies and Easterlies.
- ii) Periodic winds : Land breeze, Sea breeze and Monsoon winds.
- iii) Local winds : Loo, Foehn, Chinook, Mistral and Jet Streams.
- iv) Atmospheric Disturbances : Tropical Cyclones and Temperate Cyclones.

## Planetary Winds

The wind systems that are bound to occur at the global level on any planet having an atmosphere and rotating about its axis. The specific characteristics of trade winds, Westerlies and Easterlies may be determined by several conditions but the broad features are constant over the globe.

## Trade Winds

The winds which blow from the subtropical high pressure towards the equatorial region of low pressure regularly throughout the year in many areas especially the oceans and the hot deserts from north-east in the northern hemisphere. It brings little rain except on the line of convergence of the two trade wind systems.

## Westerlies

The Westerly winds are those which blow with great frequency from the Horse Latitudes towards the Polar region throughout the year with varying intensity and cause rain near the polar regions. Westerlies are stronger in the Southern Hemisphere because of the vast expanse of ocean waters. Owing to their ferocious nature, they are also described as "Roaring Forties", "Furious Fifties" and "Shrieking Sixties" which were dreaded terms for navigation.

## Doldrums

Also known as intertropical convergence, it is the equatorial belt of low atmospheric pressure where the north-east and south east Trade winds converge. It is a region of calmness the calm periodically broken by storms, accompanied by heavy rains.

## Horse Latitude

They are the subtropical belts of high atmospheric pressure over the oceans (near 30° latitude) between the regions of trade winds and Westerlies. They are regions of calm, light variable winds and dry air. They are also known as calm of Cancer and calms of Capricorn.

## Tropical cyclones

They develop where the trade winds begin to disappear in the doldrums. Tropical cyclones never originate over land. They move in a general westerly direction and have very low pressure in the centre giving rise to winds of great force, which are extremely destructive. It circulates in anti-clockwise direction in northern and clockwise in the southern Hemisphere. They are known by different names in different regions.

- i) Cyclone : Found in the Indian Sub-continent and the South Indian ocean.
- ii) Typhoon : Found in the Philippines, Japan and China.
- iii) Hurricane : Found in the West Indies and USA
- iv) Willy-willies : Present in Australia.

**Anti-Cyclones** : This is a mass of air whose isobars also form an oval or circular shape, but in which pressure is high at the centre, decreasing towards the outside. Winds in an anticyclone form a clockwise outspiral in the northern hemisphere, whereas, they form an anticlockwise outspiral in the Southern hemisphere.

## Periodic winds

**Monsoon** : The word monsoon has been derived from the Arabic word "Mausam" which means season. The monsoon winds thus refer to the wind systems that have a pronounced seasonal reversal of direction.

The monsoon winds blow over India, Pakistan, Bangladesh, Burma, Sri Lanka, Arabian sea, Bay of Bengal, South-Eastern Asia, Northern Australia, China and Japan.

**Summer Monsoon :** During summer, a thermal or heat low is developed over Southern Asia in the lower levels of the atmosphere. It is a cyclone with a considerable air flow. From the Indian Ocean and the South Western Pacific, warm humid air moves northward and north westward into Asia passing over India, Indo China and China. This air flow accompanied by heavy rainfall constitutes the Summer monsoon in South-East Asia.

The Winter monsoon is a gentle drift of air in which the winds generally blow from the north east. Retreating monsoon cause sporadic rainfall especially in the north-eastern parts and Tamil Nadu coastal areas of India. Outside India, in the Eastern Asiatic countries such as China and Japan, the winter monsoon is stronger than the summer monsoon.

## Local Winds

There are winds that develop as a result of local conditions in temperature and pressure of air - They affect small areas, their occurrence relates to the lowest levels of Troposphere.

**Tornado :** An extremely violent whirlwind, covering a small area - sometimes wind velocity exceeds 300 km per hour. It occurs frequently in the Mississippi basin of the USA and Sahara.

**Loo :** A very hot and dry wind (hot wave) in the North Western India and Pakistan which blows from the west in the afternoon of May and June and may cause sunstroke.

**Mistral :** The cold wind which originates over the snow - covered mountains of Alps and blows towards the Mediterranean sea.

**Chinook and Foehn :** Warm and dry local winds blowing on the leeward sides of the mountains are called chinook in the USA and Foehn in Switzerland.

**Harmattan :** The warm and dry winds blowing from north-east and east to west in the eastern

parts of Sahara desert are called harmattan. Similar winds are called 'brickfielder' in Australia, 'blackroller' in USA. 'Shamal' in mesopotamia and persian gulf and 'norwester' in Newzealand.

**Sirocco :** It is a warm, dry and dusty wind which blows in northernly direction from sahara desert and after crossing mediterranean sea reaches Italy, Spain etc. Similar winds are known as 'Khamism' in egypt, 'gibli' in Libya, 'Chilli' in Tunisia, and 'simoon' in arabian desert.

**Bora :** It is an extremely cold and dry north-easterly wind blowing in the adriatic sea.

**Blizzard :** It is a violent, stormy, cold and powdry polar wind laden with dry snow in Siberia, Canada and USA.

**Purga :** It is a snow laden cold wind in Russian Tundra.

**Bise :** It is a cold wind in France.

**Levanter :** It is a strong easterly cold wind in Spain.

**Pampero :** It is a cold wind in a pampas region of south America.

**Santa Ana :** It is a warm, dry wind in USA.

**Yamo :** It is a warm dry wind in Japan.

**Zonda :** It is a warm wind in Argentina.

**Tramontane :** It is a warm wind in central Europe.

**Jet Stream :** The high-speed winds which blow from the west in the upper atmosphere over mid-latitude areas are called Jet streams. It has an important influence in the formation of weather conditions.

**Temperate Cyclones :** These rise in the belt of westerly winds and are caused by the mixing of cold air from the polar regions with warm, humid air of tropical regions. They usually bring prolonged rain to coastal areas and often very windy weather. The winds blow out in spirals in the clockwise direction in northern hemisphere and anti-clockwise direction in the southern hemisphere. However, they do not cause much havoc as tropical cyclones.

## Precipitation

It is the process by which condensed water



vapour falls to the earth's surface as rainfall, snowfall and other forms.

On the basis of its origin, precipitation may be classified into three main types.

**Convictional Precipitation :** It is caused when moist winds are drawn into the convection currents of a hot region. It Generally occurs in equatorial region. The thundery rain of a summer afternoon is a typical example.

**Orographic Precipitation :** It is caused by the surface relief of the land, mainly, by the presence of mountain range. There is heavy rain on the windward side.

**Cyclonic Precipitation :** It is associated with the passage of a cyclone or depression.

**Rainfall :** When precipitation is in the form of water drops, We call it rainfall. Only when temperature of water vapour is above  $0^{\circ}\text{C}$ , rainfall will occur. At sub-zero level temperatures, snowfall will occur.

Main determinants of rainfall are-latitude, distance from the sea, direction of winds, proximity of mountains and seasons. The regions of heavy rainfall in the world are - Equatorial regions, Tropical Monsoon regions and mid-latitude West Margin regions. Regions of scanty rainfall (below 25 cm annual) are - tropical desert, mid-latitude deserts and polar regions.

**Rain shadow :** An area which lies behind a mountain range and has low rainfall i.e., the lee side of the Western Ghats. For instance - Coimbatore region of Tamil Nadu, Deccan plateau of Karnataka and Maharashtra.

**Hydrological Cycle :** The continuous circulation of water among lithosphere, atmosphere and hydrosphere is called hydrological cycle.

**Latent Heat :** The hidden amount of heat in water vapour is called latent heat. The energy released after condensation is called latent heat of condensation.

**Humidity :** It refers to the content of water vapour present in air in gaseous form at a particular time and place. It is measured through an instrument called 'hygrometer'.

**Absolute humidity :** The total weight of moisture content or water vapour per volume of air at definite temperature is called absolute humidity.

**Specific humidity :** It is defined as the mass of water vapour in grams contained in a kilogram of air and it represents the actual quantity of moisture present in a definite air.

**Relative humidity :** It is defined as a ratio of the amount of water vapour actually present in the air having definite volume and temperature (i.e. absolute humidity) to the maximum amount the air can hold i.e. the humidity capacity.

**Fog :** It is microscopically small water drops suspended in the atmosphere and reduce the horizontal visibility to less than one kilometer.

**Mist :** A light fog is called a mist when the visibility is restricted to 2 kilometers.

**Dew :** When moisture is deposited in the form of water droplets on cooler surface of solid objects it is known as dew.

**Clouds :** Clouds are aggregates of innumerable tiny water droplets, ice particles or mixture of both in air generally above ground surface.

On the basis of height clouds are classified as under.

1. High clouds (height 6 - 20 km)
  - (a) cirrus clouds
  - (b) cirro - cumulus clouds
  - (c) cirro - stratus clouds
2. Middle clouds (height 2.5 to 6 km)
  - (d) Alto - stratus clouds
  - (e) Alto - cumulus clouds
  - (f) Nimbo - stratus clouds
3. Low clouds (height ground surface to 2.5 km)
  - (g) Strato - cumulus clouds
  - (h) stratus clouds
  - (i) cumulus clouds
  - (j) cumulo - nimbus clouds

## Natural Vegetation and Soil

### Classification of natural vegetation

Equatorial and Tropical Evergreen Forest

These forests are located close to the equator -

Amazon and Congo basins, Malaysia, Coastal Burma, Cambodia, Vietnam, Indonesia, New Guinea etc. - where the rainfall is heavy. Example of trees - Ebony, Mahogany, Rosewood etc.

**Tropical Monsoon Forest :** They are located in Burma, Thailand, Cambodia, Laos, North Vietnam, parts of India, North Australia etc. Examples of trees- Teak, Bamboo, Sal, Sandalwood, Acacia, Eucalyptus etc.

**Temperate Evergreen Forests :** Located chiefly on the eastern sides of landmasses in warm temperate latitudes- South China, South Japan, Southeast Australia, South Brazil etc. Examples of trees- Evergreen Oak, Magnolia (China & USA), Camphor and Bamboo (China), Eucalyptus (Australia) etc.

**Mediterranean Forest :** This type occurs on the Western sides of land masses in the warm temperate latitudes : low lands around the Mediterranean sea, South-West Australia, Southwest Africa, Central Chile and Central California. Examples of trees : Evergreen Oak, Eucalyptus, Redwood etc.

**Cool Temperate Forest :** Deciduous trees predominant regions include - West and Central Europe, Eastern USA, North China, North Japan New Zealand etc. Examples of tree - Oak, Beech, Chestnut, Walnut etc.

**Coniferous Forests or Taiga :** This type of forest is most extensive in high latitudes and on high mountains. This is a forest of evergreen, conebearing trees, Carrying needle shaped leaves. Examples of trees : Pine, Spruce, hemlock. These conifers are extremely important for their soft wood required for the paper, match, and synthetic fibre industry. found mainly in Northern Canada and Northern Eurasia.

**Tropical Grasslands** Tropical grassland are located mainly in the continental regions of tropical latitudes where rain occurs in the hot season which lasts for about 5 months. Important regions - north and south of Zaire Basin, West Africa and East Africa plateau.

parts of Brazil Guiana highlands, part of Deccan plateau in India. Tropical grasslands have different names according to their location: Campos - Brazil, Llanos - Guiana highlands, Savanna - Africa and Australia.

**Temperate Grasslands :** These grasslands are almost treeless - thus contrasting with tropical grasslands. They are best developed in continental interiors of temperate latitudes. Important temperate grasslands of the world include : Steppe - Eurasia, Prairie - North America, Pampas - Argentina, Veldt - South Africa, Downs - Australia

**Tropical Desert :** Mostly situated between 15° - 30° N and S on the western sides of land masses. The chief regions are : Sahara (North Africa), Arabia, parts of Iran, Iran, Syria, Jordan and Israel, parts of Pakistan, Central Australia, Namib desert (South West Africa), Atacama (coastal Peru and North Chile). The most common plants are cacti, thorn bushes and coarse grasses.

**Mid-latitude Deserts :** These are situated in the interior of continents of Asia and North America between 30° to 35° latitude. Aridity and a great annual temperature with extremes of winter cold mark the region. In North America these deserts are found in basins surrounded by the Rockies. In South America the Patagonia desert lying to the east of the Andes is an example.

**Tundra :** This type of vegetation is chiefly confined to the northern hemisphere fringing the Arctic ocean in the continents of Eurasia, North America and Greenland Coast. Important vegetation include - mosses, lichens and a few small shrubs

## Classification of World Soils

Soils can be subdivided into three orders known as zonal, intrazonal and azonal

### (i) Zonal soils

They are formed under the conditions of good soil drainage through the prolonged action

### Endangered Earth : Some Indicators

- North America's 40% cropland and range has become desert.
- More than 60% of the pacific north west coastal forests of North America have been cut down
- Half of the remaining forests of Honduras may disappear by 2000.
- Colombia is expected to lose one-third of the remaining forests by the end of this century
- Southern Chile's rain forest faces threat
- 5,335 sq miles of forests are destroyed in Brazil every year
- 160 million acres have turned into desert south of sahara since 1940.
- 71% of trees in Czechoslovakia are threatened by air pollution
- Philippines has lost 90% of its coral reefs
- Australia's 23% range and cropland has turned into desert.
- First hole in the ozone layer identified over antarctica in 1985
- Second hole in the ozone layer identified over arctic in 1987

of climate and vegetation and are by far the most important and widespread of the three orders

#### (ii) Azonal soils

They have no well-defined profile either because they have had insufficient time to develop or because they are on slopes too steep to allow profile development

#### (iii) Intrazonal Soils

They are simply those formed under condition of very poor drainage or upon limestone whose influence is dominant

#### Major soil groups and their characteristics

**Podzol** : One of the most widespread soil. The soil is most developed. Rich in humus, low in fertility, deficient in bases like calcium, magnesium, potassium and phosphorous. Closely associated with the sub-arctic climate and the cooler parts of the manne west coast climate

**Latsols** : Characteristics of humid tropics chief characteristics include

- a) Complete chemical and mechanical decomposition of the parent rock
- b) Silica entirely leached from the soil.
- c) Complete lack of humus
- d) A reddish brown colour given by the oxides of iron, aluminium and manganese

**Chernozem Soil** : Zonal soil in a semi-arid climate. Horizon A is rich in humus. Horizon B is rich in bases. Generally acidic. It is found in Ukraine, Central USA, Central Africa, South America and Australia. It is highly productive for small grain crops like wheat, oat, barley etc.

**Prairies soil** : Similar to Chernozems. But it lacks the excess calcium carbonate of the Chernozems. Extremely productive. Maize is the main crop associated with it.

**Chestnut soil** : It is the zonal soil of mid latitude grasslands that occurs in drier region. It has considerably low content of organic materials. Its parent material is generally loess. The Chestnut soil occurs in South Ukraine, the great plain areas of the USA and South African velds.

**7. Hydrographic soil** : It is associated with marshes, swamps, bogs or poorly drained flat uplands. They are all intra-zonal soils. "Bog" soils are formed under bog vegetation in regions of cool continental climate.

**8. Desert soil** : The soil is grey in colour in temperate region and red in hot desert region of Tropic. Desert soil is divided into two kinds - cold desert soil and hot desert soil. The cold desert soil is found in mid-latitude cold desert region and lack in humus. It has one of the best cotton producing regions of the world.

**9. Tundra soils** : This type of soil develops in such geographical regions where summer is short (3 months) and winter is long (9 months). Plant growth is restricted. Even percolated water is frozen during the winter. No chemical and biological action takes place for over nine months. Wherever frozen ice melts, marshy soil is developed. Canada and the erstwhile U.S.S.R. have

his type of soil.

## The Hydrosphere

All the water of the earth including the oceans, lakes, rivers, ice sheets and the water in the atmosphere is called hydrosphere and it covers about 71% of the earth's surface.

## The Profile of the Ocean Floor

The ocean basins are in many ways similar to the land surface. There are submarine ridges, plateaus, canyons, plains and trenches.

In general, the ocean floor can be divided into four major divisions, according to the depth :

### 1. Continental Shelf

Transition between the land and sea. Main features of the continental shelf include :

**Depth** : less than 200 metres.

**Slope** : 2 metres per km.

**Breadth** : varies.

**Area** : 7.5% of the global area.

**Maximum breadth** : 1100 km between northern Norway and Novaya Zemlya along Barents Sea. Narrow near fold mountains. Area of terrigenous deposits.

### 2. Continental Slope

**Average Depth** : 200 to 2000 metres.

**Area** : 8.5% of the total oceanic area.

**Slope** : 35 to 61 metres per km. Much near old mountains. Submarine canyons well developed.

### 3. Deep Sea Plain

**Depth** : 3000 to 6000 metres

**Area** : 77% of the oceanic area.

It contains feature like ridges, hills mountains, guyots, deeps and fracture zones.

### 4. Oceanic Deep

**Depth** : More than 6000 metres.

**Area** : 2% of the oceanic area.

They are more often found close to the continents, particularly in the Pacific Ocean, where several deep trenches have been founded.

Other important relief features of the ocean basins include : Submarine Canyons, Continental Rise, Submarine Ridges, Abyssal Hills, Trenches, Troughs, basins, bank, Shoal and Reef.

## Temperature of the ocean water

The temperature of the ocean water can be studied with respect to horizontal and vertical distribution of temperature.

### Horizontal distribution of temperature

On an average the temperature of surface water of ocean is  $26.7^{\circ}\text{C}$  or  $80^{\circ}\text{F}$  and the temperature gradually decreases from the equator to the poles. This rate of decrease of temperature with increasing latitudes is generally  $0.5^{\circ}\text{F}$  per latitude. The average annual temperature of all the ocean is  $17.2^{\circ}\text{C}$  or  $63^{\circ}\text{F}$ .

### Vertical distribution of temperature

Though the sea temperature decreases with increasing depth, the rate of decrease is not uniform. The change in sea temperature below 200 m is negligible. This distribution can be shown as under

Depth in Fathoms	Temperature (in $^{\circ}\text{F}$ )
100	60.7
200	50.1
500	45.1
1000	36.5
1500	35.5
2200	35.2

## Salinity

It is defined as the total amount of solid material in gram contained in one Kilogram of sea water and is expressed as part per thousand (‰). It is measured by electric salinity meter

The average salinity in the oceans and seas is 35‰. Very high salinity is recorded in inland seas and lakes. Lake Van in Turkey records the highest salinity of 330‰. Red Sea (240‰), Dead sea (238‰), great salt lake with (220‰) are other areas of high salinity



They are more common on pacific ocean.

## El Nino and La Nina

El nino is a warm sub-surface current in the pacific ocean off the peruvian coast. El nino literally means 'child of the christ'. It is a destructive weather system pushed into action by the warming of the cold ocean current in the east pacific.

El nino's destructive capacity peaks by late October or November, when it starts to cool down and is called La-nina or literally 'The girl'. El nino affects the monsoon in India. An El nino circulation in the winter months suggest a strong walker circulation in the following summer and consequently a weak monsoon. However scientists are still scepticle about its relation with monsoon. Recently its link with the fire in Indonesia has been subjected to much debate.

## Ocean currents

These are the general movement of the surface water of the ocean in a definite direction over long distances. Main causes of ocean currents include- winds, differences in density owing to variations in temperature and salinity. Ocean currents may be cold or warm.

## Origin of Indian Monsoons

The world 'Monsoon' is derived from the Arabic word 'mausim' which means season. This word is now used to indicate winds which show seasonal reversal in their direction twice each year and this reversal exceeds a minimum of 120 degrees.

According to the traditional thermal concept of the origin of monsoons, they result from the heterogeneous character of the globe and the differential heating and cooling of continental and oceanic areas. This concept has now been rejected and now a 'dynamic concept' of origin of monsoon has been propounded.

During the summer, three simultaneous events take place in the Indian sub continent.

- (i) Upper air westerly jet stream are positioned in Asia in the troposphere. Due to the mechanical barrier offered by Himalayas and the Tibetan

## Percentage of salt in the ocean

Salt	Percentage
NaCl	77.8
MgCl <sub>2</sub>	10.9
MgSO <sub>4</sub>	4.7
CaSO <sub>4</sub>	3.6
K <sub>2</sub> SO <sub>4</sub>	2.5
CaCO <sub>3</sub>	0.3
MgBr <sub>2</sub>	0.2

plateau. They are bifurcated into two parts i.e. the northern branch lying north of the Himalayas. During summer the upper air circum polar whirl shifts northwards, which results in the northern shifting of the Himalayan Jet streams. In the beginning the southern branch shifts northwards and later both the branches withdraw from India.

- (ii) Low pressure is developed due to intense heat in north west Pakistan and north west India.
- (iii) During summer the inter tropical convergence is pushed north of the equator and therefore the south east trade winds are forced towards equator. After crossing the equator, due to coriolis force, these winds become southwesterly winds.

As long as the jet streams exist, they do not allow the warm winds to rise from the low pressure area but as soon as they withdraw, air rushes up and the wind from the high pressure area rushes to fill the low pressure area. This mechanism result in the sudden burst of monsoon.

During winter in India, the upper air westerly jet stream blow from west to east across the mediterranean sea and create storms which bring in precipitation to the northern plains during winter. These 'western disturbances' affect the weather condition upto plane.

## Tides

The alternative rise and fall of the level of the Sea, approximately twice a day, caused by the gravitational pull of the moon and the Sun is called tide. The gravitational attraction of the moon is twice as powerful as that of the Sun. (The moon



It embraces the study of human race, the growth of human numbers, the movements and density of population, etc. Thus human geography can be defined as a science which studies the relationship between man and environment.

The important aspects of human geography have been explained under the following heads :

- 1) World Population    2) Races of the World
- 3) Tribes of the World   4) Population Terms

## World Population

At the time of birth of Christ or during the christian era, the world population was estimated to be about 250 million or so. The world population has been increasing and has never seen a decline trend till now despite various wars, natural calamities etc.

**Growth of World Population :** The population of the world was estimated to be about 500 millions in 1650 and the same reached to one billion in 1820. In 1920 it was 2 billion and in 1987 it was about 5 billion. The world population is expected to reach 6.2 billion in 2000 AD.

The rate of growth of world population has shown a gradual increase from the year 1970 and the trend is likely to continue.

**Distribution :** The distribution of population is far from even. The unevenness occurs at all levels- continental, national, regional and local. In terms of population, the continent of Asia has the largest number of people followed by Europe, Africa, North America, South America and Australia. The continent of Asia, which includes the two most populous countries of the world China and India, alone accounts for more than 55% of the total world population.

**Density :** Even in terms of density, the population is unevenly distributed. The average density of population for the world is about 29 persons per square kilometre. Europe, with the figure of about 65 persons per square kilometre, leads the world and Oceania (comprising Australia and the Pacific Islands) is the region of the lowest density with a figure of three persons. Among the

countries, Bangladesh has the highest density- more than 600 persons per square kilometre. Small territories like Hong Kong (5313) Malta (1256) and Singapore (4170) have still higher densities.

## Races of the World

The people of the world have been divided into five racial groups and it includes :

**Caucasoids :** The Caucasoids are numerically one of the largest group and it includes not only white Europeans and people of European origin living elsewhere, but also Arabs and most of the people of the Indian sub-continent. It accounts for 33% of the world population.

Caucasoids are also divided into Nordic (Northern Europe) Alpine (central Europe) and Mediterranean people (Arabs, Jews and People of Indian sub-continent).

**Mongoloids :** Mongoloids are represented by the Chinese. Amerinds (native American Indians) are perhaps an early offshoot while the Polynesians are a sub-group of the Mongoloids with a great deal of racial intermixture. This constitutes 43% of the world population.

**Negroids :** The Negroids are represented by the African people.

**Australoids :** Mostly tribal people are represented by these races.

**Hottentots and Bushmen :** Africa tribe of West coast of Namibia desert.

**Note :** The last two races are dying and the first three are flourishing. They together comprises 24% of the world population. The Negroids form the major part of this 24% and the rest two are negligible.

## Population terms

- a) **Birth rate :** Number of the live births per year per 1,000 of the population
- b) **Death Rate :** Number of deaths per year per 1,000 of the population
- c) **Infant Mortality :** Number of deaths of children below 1 year of age per 1,000 of the population
- d) **Life Expectancy :** The average at which people



die. It does not mean the age at which most people die. In India, the figure is 59.3 years of age, whereas in Britain it is 72; this is because more young children die in India and thus bring down the average expectancy.

- e) Migration :** Migration is broadly defined as permanent or semi-permanent shifting of residence.
- f) Natural Increase :** Excess of births over deaths per 1,000 of population. This does not include increase in population due to immigration.
- g) Net Reproduction Ratio :** Rate at which women are replaced by daughters who will have children.
- h) Optimum Population :** A country is said to have optimum population when the number of people is in balance with the available resources.

**\*Moderately Populated Areas :** Tropical Savannas (Brazil, Northern Australia, many part of Africa) and Temperate Grasslands areas in North America (the Pampas).

**\*Densely Populated Areas :** (a) Agriculture dominated (Nile valley of Egypt, the river valleys and plains of China, the Indo-Gangetic Plain and the island of Java in Indonesia); and (b) Industry dominated (Western Europe, north-eastern USA and Japan).

## Economic Geography

The branch of geography which studies economic activities of man is called Economic Geography.

### Classification of Activities

All types of economic activities of man can be classified into the following categories :

#### Primary activities

Agriculture, food gathering, hunting, fishing, and animal husbandry, forestry, mining etc. are known as primary activities. The workers involved in such kind of activities are generally known as *red collar workers*.

#### Secondary activities

There are those which involve the processing

### Chief Agricultural Products and their producers

(Agricultural Products)	Chief producers (per cent of world production)
Rice	China (38.3), India (17.0), Indonesia (8.8), Bangladesh (5.0)
Wheat	China (17.2), Russia (16.1), USA (11.3), France (5.9)
Maize	USA (38), China (17), Brazil (5.8), Russia (4)
Sugarcane	India (27), Brazil (18.8), Cuba (7.2), Mexico (4.5)
Tea	India (27.6), China (21), Sri Lanka (8)
Coffee	Brazil (26), USA (19.6), Russia (15), Mexico (5)
Cotton	China (26), USA (19.6), Russia (15), Pakistan (8)
Bajra	India (22), China (18), Russia (15), Nigeria (11.5)
Rubber	Malaysia (34.6), Indonesia (21.6), Thailand, China
Soyabean	USA (52.5), Brazil (17), China (12), Argentina (7.1)
Pulses	India (20.6), Russia (18), China (10), Brazil (4.1)

of primary or semifinished products. For example mining bauxite is a primary activity and refining aluminium from bauxite is a secondary activity. Workers engaged in secondary activities are called *blue collar workers*.

#### Tertiary activities

There are those relating to the provision of services rather than goods, for example : retail trade, clerks etc. Workers engaged in such activities are called *pink collar workers*.

#### Quinary activities

There are those activities which deal with higher levels of professional and administrations in government (IAS officers). They are top executives of big business houses, stock brokers etc. Workers engaged in such activities are called *gold collar workers*. However, the economic activities can also be divided into two broad categories :

**Physical activities :** Such activities involve

manual work and mental capabilities of negligible importance. Workers engaged in such activities are called *blue-collar workers*. Example - Rickshaw pullers, mechanics, Peons etc.

**Mental activities :** Such activities involve more of mental activities. The intellectual level of a worker is of major importance in such activities. Examples: clerks, administrators, managers, lawyers, doctors etc. Workers engaged in them are called *white collar workers*.

## Classification of Natural Resources

A resource has been defined as any means of attaining given ends. The term 'natural resource' has undergone an expansion as a result of man's greater understanding of his relationship with the world he lives in. Natural resources may be classified into the following types :

### Biotic and Abiotic Resources

**Biotic natural resources** are those consisting of living things. They can continue to reproduce and regenerate their population so long as environmental conditions remain favourable and an adequate seed source is maintained. All biotic sources are renewable.

**Abiotic resources** consist of non-living things. In general, they may be considered mostly non-renewable, some abiotic resources, however, are renewable. For instance - manganese ore. All minerals are abiotic resources and non-renewable.

### Exhaustible and Inexhaustible Resources

The metals and minerals obtained from earth are exhaustible resources. The natural replacement of minerals through geological events is so slow, that it can have no relevance to mineral extraction. Resources which can be renewed by reproduction or by physical, mechanical or chemical processes are known as *inexhaustible resources*. Solar energy, air, water, wildlife, forests and human being are the instances of *inexhaustible resources*.

## Potential and Developed Resources

The total amount of resources that are available and can be used in a geographical area are the potential resources, whereas the actual amount of resources which are used are the *developed resources*.

### Agricultural Resources

Agricultural land is the most basic of the world's vast and varied resources. The chief agricultural resources, comprising crops cultivated by man, may be classified into five groups.

- Cereals - Rice, Wheat, maize, pulses, rye, oats, millets and barley.
- beverages e.g. Tobacco.
- Sugarcane, Sugarbeet, Spices, Vegetables and fruits.
- Fibres - Cotton, Jute and Hemp.
- Rubber and Oilseeds - Groundnuts, Soyabean and Castor.

**Pastoral activity :** means the rearing of animals whether for meat, milk, wool or hides

### Raw Materials and Energy Resources

Man gets primary products from agriculture, forestry, fishing animals and minerals. The presence of raw materials is the fundamental conditions of all. The resources used as power to run machines, industries and automobiles are known as *energy resources*. The major fuels today are coal, oil and electricity but in some cases, other fuels including wood, biogas and nuclear fuels are used to produce power.

### Minerals Resources

## Important Minerals and their producers

Mineral	Leading producers (in decreasing order)
Iron ore	Brazil, Russia, Australia, China
Aluminium	U.S.A, Russia, India.
Petroleum	Russia, USA, Saudi Arabia, China
Natural Gas	Russia, USA, Canada, Netherlands.
Copper	Chile, USA, Russia
Lead	Australia, U.S.A, Russia, China
Zinc	Canada, Australia, Russia, China
Tin	Brazil, Malaysia, China, Indonesia.
Manganese	Russia, South Africa, Australia
Silver	Mexico, Russia, USA
Uranium	Canada, USA, South Africa, Australia
Mica	India, Russia, South Korea, USA

labour and capital on a relatively small area. The density of population necessitates an ever increasing intensity in the use of the land. This is typical of civilised nations like China, Japan and India which have large population as compared to cultivable land.

**Extensive cultivation :** A system of farming which the cultivator uses a limited amount of labour and capital on relatively large area. This is typical of Canada, USA, Argentina, Australia etc.

**Subsistence Farming :** The type of farming in which the produce is consumed mainly by farmer and his family and is not sold.

**Dry Farming :** A method of farming without irrigation in an area of limited rainfall, the land being treated so as to conserve the moisture.

**Pastoral Farming :** The practice of breeding and rearing certain herbivorous animals. Inhabitants of Tundra, deserts, semi-deserts resort to it and generally live a nomadic life.

**Mixed Farming :** The combination of agriculture and pastoral farming is called mixed farming.

ing. This is one of the most important forms of agriculture found in the highly developed parts of the world : North-Western Europe, North America, parts of the U.S.S.R. and the temperate latitudes of parts of the southern continents.

**Terrace Cultivation :** An agricultural system by which mountain and hill slopes are cultivated. Practised in the Mediterranean countries, the Andies and China etc. Now practised in India also.

**Shifting Cultivation :** A primitive form of agriculture, in which a plot of land is cultivated for a few years and then is deserted. The ground is cleared by destroying forests. Chiefly found in the tropical countries. It is also known as Jhum cultivation in North Eastern India.

**Truck Farming :** Also called market gardening. It is the intensive cultivation of vegetable crops, fruits and flowers for market use of trucks for transporting the produce to market.

## Animal Products and their chief producers

**Wool :** Wool is of different types and different countries produce wool of different grades. On the whole, Australia and CIS are the chief producers.

**Cattle Meat :** Although India has the largest cattle population in the world, it does not lead anywhere in the production of cattle meat. CIS and USA are the largest producers of beef.

**Pork and Mutton :** The largest producer of pork is China and of mutton is New Zealand and Australia.

**Dairy Products :** The dairy industry is developed in temperate lands. The leading producers are France and CIS and the biggest quantity of cheese comes from USA and India.

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## Chief industrial products and leading producers

Agriculture, cattle rearing and mining all fall under the category of primary activities. Industrial production is referred to as secondary activities. The important industries and leading countries in respect of each of these are:

**Iron and Steel :** USA and C.I.S.

**Cotton textile :** USA and India

**Jute Textiles :** India and Bangladesh

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**Silk textiles :** Japan and USA (the USA industry is based upon imported raw silk.)

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**Machine Tools :** USA and Germany.

**Shipbuilding :** Japan and Sweden.

**Locomotive :** C.I.S. and USA

**Automobile Industry :** USA and Japan

**Cement Industry :** C.I.S. and USA

**Aircraft industry :** USA and C.I.S.

**Paper and pulp Industry :** A forest based industry, located mainly in higher latitudes. Pulp is the basic raw material for paper; pulps are both mechanical and chemical. The chief producers of mechanical and chemical pulp are USA and Canada and they are also the chief producers of newsprint.

## World Transport

Transportation means movement of goods and passengers from one place to another. It plays a vital role in production and distribution and hence is called the life blood of commerce.

The means of transport are grouped under three heads (i) Land transport (ii) Water transport (iii) Air transport.

### Land Transport

**Road Transport :** They are the most universal form of transport. It was only in the

eighteenth century that roads were systematically built and surfaced. Highways have been constructed to facilitate speedy transportation of goods and passengers. The Pan-American highway, Brazilia - Belem road etc are some of the important highways. U.S.A has the largest length of roadways and also the largest number of automobiles.

**Railway :** The first railway was opened between Stockton and Darlington in England in 1825. The main railway routes of the world are as under:

(a) *Northern trans-continental railway :* It runs from Seattle to New York in USA

(b) *Central transcontinental railway :* It runs from San Francisco to New York.

(c) *Southern transcontinental railway :* It runs from Los Angeles to New York.

(d) *Canadian-Pacific railway :* It runs from Halifax to Vancouver in Canada.

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**Pipelines :** Pipelines are becoming an increasingly important form of transport. They generally transport petroleum and natural gas. The most famous pipeline in U.S.A is the 'big inch pipeline' which transports oil from gulf of Mexico to the north-eastern parts. The longest pipeline of the world is called 'Tapeline' India have her own H-B-J pipeline

### Important Minerals and their producers

Mineral	Leading producers (in decreasing order)
Iron ore	Brazil, Russia, Australia, China
Aluminium	U.S.A, Russia, India.
Petroleum	Russia, USA, Saudi Arabia, China
Natural Gas	Russia, USA, Canada, Netherlands.
Copper	Chile, USA, Russia
Lead	Australia, U.S.A, Russia, China
zinc	Canada, Australia, Russia, China
Tin	Brazil, Malaysia, China, Indonesia.
Manganese	Russia, South Africa, Australia
Silver	Mexico, Russia, USA
Uranium	Canada, USA, South Africa, Australia
Mica	India, Russia, South Korea, USA

labour and capital on a relatively small area. The density of population necessitates an ever increasing intensity in the use of the land. This is typical of civilised nations like China, Japan and India which have large population as compared to cultivable land.

**Extensive cultivation :** A system of farming which the cultivator uses a limited amount of labour and capital on relatively large area. This is typical of Canada, USA, Argentina, Australia etc.

**Subsistence Farming :** The type of farming in which the produce is consumed mainly by farmer and his family and is not sold.

**Dry Farming :** A method of farming without irrigation in an area of limited rainfall, the land being treated so as to conserve the moisture.

**Pastoral Farming :** The practice of breeding and rearing certain herbivorous animals. Inhabitants of Tundra, deserts, semi-deserts resort to it and generally live a nomadic life.

**Mixed Farming :** The combination of agriculture and pastoral farming is called mixed farming.

This is one of the most important forms of agriculture found in the highly developed parts of the world : North-Western Europe, North America, parts of the U.S.S.R. and the temperate latitudes of parts of the southern continents.

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### Water Transport

Water transport can be divided into: inland water ways and Ocean transports:

**Inland Waterways :** Inland waterways consist mainly of navigable rivers and canals. The largest rivers of the world like Amazon, Yangtze Kiang, Mississippi, Rhine, Volga, St Lawrence etc are navigable.

The main canals of the world and the places they join are as follows-

**Ocean Transport :** The main oceanic routes of the world are:

**North Atlantic route :** It is the busiest trade route of the world and connects ports of western Europe with ports on the eastern coast of north America.

**The panama route :** It connects the ports of the Pacific with the ports in the Atlantic Ocean.

**The mediterranean-Suez-Asiatic route :** It connects the western European countries with the Asian countries.

**The cape route :** It connects the western and southern sections of Africa with western Europe.

**South Atlantic route :** It links Europe with the Caribbean islands and the eastern countries of south America.

**The pacific route :** It connects the western coast of North America with eastern part of Asia.

### Air Transport

Air routes can be broadly classified into, Inter continental, Continental, National, and Regional air routes.

U.S.A has the largest number of Airports. London's Heathrow airport is the busiest airport in the world. The main national airways include British airway, Lufthansa (Germany), KLM (Dutch), Air Italia, Air France, SAS (Norway, Sweden, Denmark), Quantas (Australia), Aeroflot (Russia), Japan airlines and United airlines, TWA, Pan-American airlines (all USA) etc.

### Ecosystem

The study of organisms in relation to their environment is known as 'ecology'. The term ecology was coined by A. Tansley. The concept of ecosystem can be applied to any situation where organisms function, together with their non-living environment in such a way that there is interchange of materials between them.

#### Components of an ecosystem

There are four basic components of an ecosystem (i) Abiotic component : It includes chemical substances found in soil, water and atmosphere. They are further divided into (a) Inorganic substances e.g water, oxygen, carbondioxide, minerals etc. (b) Organic substances e.g fats, proteins, Vitamins etc. (c) Climatic elements e.g temperature, rain, wind, soil, sunlight, slope etc. (ii) The biotic components include producers or autotrophs e.g plants. (iii) Consumers or heterotrophs. These include animals which obtain their food by eating other plants or animals. On the basis of their eating habits they are further divided into (a) Herbivores : They eat only living plant material (b) Detritivores : They feed on dead plant and animal material (c) Carnivores : They eat other animals (d) Omnivores : They eat both plant and animals. (iv) Decomposers : They include agents like bacteria and fungi that promote decay.

#### The trophic structure of ecosystems

The organisation and pattern of feeding in an ecosystem is known as the 'trophic structure'. There is a definite arrangement of the main components to form a sequence of levels of eating. This sequence of consumer levels is known as a 'food chain'.

The linear food chains interconnect to form 'food webs'. Organisms feeding at the same number of steps on a food chain from the autotrophs are said to be at the same 'trophic level'. The green plants are the first trophic level, herbivores the second, carnivores feeding on herbivores the third and so on.

## Energy flow and the standing crop

The energy of sunlight fixed in food production by green plants is passed through the ecosystem by food chains and food webs from one trophic level to another. Thus energy flows through the ecosystem. The ecologists have applied the first and second law of thermodynamics to explain this energy flow. The first law of thermodynamics states that energy can not be created or destroyed. It can only be transformed from one sort to another. The second law of thermodynamics states that no transformation of energy is 100 percent efficient and there is always some loss of energy as heat. Thus there will be larger loss of energy between trophic levels and also there will be losses within each trophic level. The storage of energy in an ecosystem is shown by the amount of living material in both the plants and animals present which is called the 'standing crop'. This is usually expressed as biomass per unit area. The efficiency of transfer of energy from one trophic level to the next is known as 'ecological efficiency'.

## Important canals of the world

Canal	link
Suez Canal	Mediterranean sea and Red sea
Panama Canal	Pacific ocean and Atlantic ocean
Kiel Canal	North sea and Baltic sea
Soo Canal	Lake Superior and Lake Huron
Manchester Canal	Manchester and Isthm
North Sea Canal	North sea and Amsterdam
New waterway Canal	North sea and Rotterdam
Stalin Canal	Rostor and Stalingrad
Gota Canal	Stockholm and Gottenberg
Mitteland Canal	Ems, weser and Elbe rivers
Dortmund-Ems C	Rhine and Bremen
Ludwig canal	Main and Rhine rivers

environment has varied from early period ...

## Nutrient cycle

The flow of energy in an ecosystem is one way but the nutrients which are needed to produce organic material are circulated round the system and are re-used several times. Oxygen, hydrogen, carbon and nitrogen are known as macro nutrients and magnesium, sulphur, phosphorus etc are called micro nutrients or trace elements. Nutrient cycles have a reserve pool which is a large, slow moving, non-biological component and an exchange pool which is a smaller, more active portion where the nutrient is exchanged between the biotic and abiotic parts of the ecosystem. Generally there are two basic types of cycle (i) Gaseous- where the reservoir pool is the atmosphere and (ii) Sedimentary- Where the reservoir pool is the earth's crust. The nitrogen cycle and the phosphorus cycle are their examples respectively.

## Man's impact on ecosystem

The relationship between human beings and



smog. Another substance produced by photochemical reactions is ethylene.

(ii) *Changes in the proportion of the natural component gases in the atmosphere* : The increase in carbon dioxide levels has resulted in increase in the temperature of the atmosphere leading to global warming. The climatic change convention held at Kyoto has identified 6 green house gases which have caused global warming. These include carbon dioxide, Methane and Nitrous oxide and three synthetic gases viz hydrofluorocarbon, Perfluorocarbon and sulphur hexafluoride. The nations have agreed to reduce emission levels by 5.2 percent between the years 2008 to 2012. The use of chlorofluorocarbon in aerosol propellants, refrigerators etc have caused ozone depletion which may again lead to global warming and skin cancer.

(iii) *Alteration of earth's surface in such a way as to affect the atmosphere* : Man's alteration of earth's surface has had several important effects on the meteorological processes. These alterations may be brought about through deforestation, agricultural practices or urbanisation. The removal of forest cover has altered the rate of evapotranspiration. Changes in the heat budget are brought about when an irrigated area is created in an arid region. Trees and hedges act as wind break thus causing diminution in evaporation and in carbon dioxide exchange close to the ground.

## 3. Pollution of the hydrosphere

Water pollution takes place when effluents from factories or other sources are let into rivers. These might seep through and pollute the underground water. The disposal of urban sewage into rivers, acid rain, oil spill in oceans etc not only affect the aquatic ecosystem but also affect domestic water supplies and create water borne diseases. The problem of eutrophication and the green, red or brown tides called 'phytoplankton bloom' have also polluted our water bodies.

## 4. Modification of Ecosystems

With the advancement of technology man

## Boundary Lines

- **Durand Line** : Boundary line between India and Afghanistan demarcated by Sir Mortimer Durand in 1896.
- **Hindenberg Line** : Boundary line between Germany and Poland.
- **McMohan Line** : Boundary line between India and China, demarcated by Sir Henry McMahon; not recognised by China.
- **Maginot Line** : Boundary between France and Germany.
- **Order Nisse Line** : Boundary between Poland and Germany.
- **Radcliff Line** : Demarcated by Sir Radcliffe in 1947, it forms the boundary line between India and Pakistan.
- **17th Parallel** : Defined the boundary between North Vietnam and South Vietnam before the two were united.
- **20th Parallel** : The line which Pakistan claims should be the demarcation line between India and Pakistan; not acceptable to India.
- **38th Parallel** : The boundary line between North Korea and South Korea.
- **49th Parallel** : Boundary line between USA and Canada.

has modified the ecosystem to suit his needs. The practice of monoculture or growing a single cultivated crop reduces biological diversity thus making it vulnerable to pests and diseases. Man has also introduced new species to new areas which may multiply fast at the expense of the native species and also pose a threat to the environment. Eucalyptus and rubber are classic examples of such activity. Besides, man has increased his population and destroyed the habitat of certain animals and birds.

## 5. Depletion of natural resources

The rapid increase in human population and man's own greed have resulted in rapid depletion of all kinds of resources. Food, animal, forest and soil resources are getting depleted rapidly. This depletion is most significant with respect to mineral and power resources. ■■

# AFRICA



Africa is the second largest continent of the world with an area of 30,244,050 sq. km. It is connected to Asia by the narrow Isthmus of Suez. The highest point in Africa is Mt. Kibo (19,340 ft), a peak of Kilimanjaro, in Tanzania; and Qattarah Depression is the lowest point (436 ft) below sea level in Egypt. Mountain ranges of the African continent include the Atlas Mountains, the Ethiopian Highlands, the Drakensberg, and the Ruwenzori Mts. Major rivers are the Nile, Congo, Niger, and Zambezi. Climatic conditions of Africa range from hot and rainy all year near the equator, through tropical Savana with alternating wet and dry seasons to the north and south; to hot and dry in the great Sahara desert, in the north, and the smaller Kalahari desert, in the south.

African people make about 10% of the world's population are divided into more than 50 states and are further fragmented into numerous ethnic and linguistic groups. The principal linguistic families of Africa are now generally said to be Hamito-Semitic, Niger-Kordofanian, Nilo-Saharan; and Khoisan (or Click).

Following are given the countries of Africa, their capital, and the year of admission to the United Nations Organisation of the respective countries.

Country	Capital	Year of admission to the UNO
Algeria	Algiers	1962
Angola	Luanda	1976

Benin	Porto Novo	1960
Botswana	Gaborone	1966
Burkina Faso	Ouagadougou	1960
Burundi	Bujumbura	1962
Cameroon	Yaounde	1960
Cape Verde	Praia	1975
Central African Rep.	Bangui	1960
Chad	N'djamena	1960
Comoros	Moroni	1975
Congo, Dem. Rep. (Zaire)	Kinshasa	1960
Congo, Rep.	Brazzaville	1960
Djibouti	Djibouti	1977
Egypt	Cairo	1945
Equatorial Guinea	Malabo	1968
Ethiopia	Addis Ababa	1945
Gabon	Libreville	1960
Gambia	Banjul	1965
Ghana	Accra	1957
Guinea	Konakry	1958
Guinea Bissau	Bissau	1974
Ivory Coast	Abidjan	-
Kenya	Nairobi	1963
Lesotho	Maseru	1966
Liberia	Monrovia	1945
Libya	Tripoli	1955
Madagascar	Antananarivo	1960
Malawi	Lilongwe	1964
Mali	Bamako	1960
Mauritania	Nouakchott	1961
Mauritius	Port Louis	1968
Morocco	Rabat	1956
Mozambique	Maputo	1975
Namibia	Windhoek	1990
Niger	Niamey	1960

## AROUND THE WORLD

Nigeria	Lagos	1960
Rwanda	Kigali	1962
Sao Tome & Principe	Sao Tome	1975
Senegal	Dakar	1960
Seychelles	Victoria	1976
Sierra Leone	Freetown	1961
Somalia	Mogadishu	1960
South Africa	Pretoria	1945
Sudan	Khartoum	1956
Swaziland	Mbabane	1968
Tanzania	Dodoma	1961
Togo	Lome	1960
Tunisia	Tunis	1956
Wester Sahara	El Aaiun	-
Uganda	Kampala	1962
Zambia	Lusaka	1964
Zimbabwe	Harare	1980

### Algeria

*Capital:* Algiers, *Area:* 2381741 sq. km, *Population:* 30.2m, *Language:* Arabic, Berber, French, *Literacy:* 57%, *Religion:* Islam, *Currency:* Dinar, *Estimated GDP\**: 47072, *GNP per capita:* 1550, *\*\*Doctor per 1000 people:* 0.8.

The Democratic and Popular Republic of Algeria is bordered by Mauritania, Morocco, and Western Sahara (W), the Mediterranean Sea (N), Tunisia and Libya (E). The Atlas Mountains divided northern Algeria into a coastal lowland strip (Tell) and a semiarid plateau (Chotts). About half of Algeria's work force are farmers, producing cereals, wine, citrus fruits, etc. Mining and manufacturing contribute a chunk of national income. Petroleum is the leading export item.

First Berber-speaking nomads settled there by the 2nd millennium B.C. Algeria was conquered by the Vandals (430-31), the Byzantine Empire (6th century), and the Arabs in 7th and 8th century. Spain captured in 15th century, but France invaded Algeria in 1830 and declared it a colony in 1848. A nationalistic Movement began to develop after World War I, and the National Liberation Front (FLN) broke out a war of independence in 1954. After a seven year of bloody fighting Algeria became independent on 3 July 1962. Since then Algeria has been one of the prominent non-aligned

states and a champion against white military rule in South Africa. In 1991 election, Islamic Salvation Front (FIS) won the first round, but second round election was cancelled. Since then a campaign of terrorism was launched by Moslem fundamentalists to the present day claiming more than 100,000 lives. More than 1,000 Algerians 'disappeared' after being arrested by government forces. It was a hope that parliamentary poll of June 1997 and local elections in Oct 1997 would brought to an end the violence. However, the opposition accused of ballot rigging, on the other hand the Algerian govt. blamed the slaughter on fanatical Islamists. The deadlock continues.

\*Gross Domestic Product (GDP) estimated in \$ millions of the year 1997 (World Development Indicators - 1999).

\*\* Doctor per 1000 people during the year 1990-97 (World Development Indicators - 1999).

### Angola

*Capital:* Luanda, *Area:* 1246,700 sq. km, *Population:* 12.0m, *Language:* Portuguese, Bantu, *Literacy:* 40%, *Religion:* Tribal and Christianity, *Currency:* New Kwanzas, *Estimated GDP:* 7662, *GNP per capita:* 340, *People infected by AIDS\**: 110,000, *Doctor per 1000 people:* 0.1.

The People's Republic of Angola is bordered by the Atlantic Ocean (W), Zaire (N), Zambia (E), and Namibia (S). Nearly all the land is desert or savana except for the densely forested valleys of the north east and a narrow coastal strip in the west. The climate is tropical with low rainfall in the west but increasing inland. Formerly dependent on agriculture, Angola today receives over two-thirds of its export earnings from oil production. Major crops include: Coffee, sugarcane, maize, and wheat.

Angola remained under Portuguese control until its independence in 1975, but the Dutch captured for a brief period (1641-48). Angola was primarily a source of slaves for Portuguese colony in Brazil. Modern industrial development began only after World War II. In 1972 Angola was made an autonomous state. After a 16-year Civil War, a

peace agreement was signed on 31 May 1991 between People's Liberation Movement of Angola (MPLA) and the national Union for the Total Independence of Angola (UNITA); and a single national army formed and multiparty elections held. But tussel between MPLA and UNITA continues. The mandate of the third UN peacekeeping force (UNAVEM III) expired on 30 June 1997 and it was replaced by MONUA. On 9 Jan 1998 a breakthrough in negotiations between the Govt. and UNITA announced. Practically there was no impact, fighting resumed in the north.

\* People infected by AIDS up to the year 1997 (World Development Indicators - 1999).

## Benin

*Capital:* Porto Novo, *Area:* 112,622 sq. km, *Population:* 5.9 m, *Language:* French, Fon, Adja. *Aizo, Literacy:* 28%, *Religion:* Animist, Chiefly Voodoo, *Currency:* CFA Franc, *Estimated GDP:* 2141, *GNP per capita:* 380, *People infected by AIDS:* 54,000, *Doctor per 1000 people:* 0.1.

The People's Republic of Benin (formerly Dahomey) is bordered by Togo (W), Burkina Faso and Niger (N), Nigeria (E), and the Gulf of Guinea (S). In coastal parts there is an equatorial climate, with a long/short rainy seasons. Ninty per cent of Beninese earn through agriculture, with cassava, yams, maize, groundnuts etc. Industrial development is largely limited to palm-oil processing, textile and cement production.

French conquered Dahomey in 1892-94. In 1975 Dahomey renamed Benin. Dahomey became independent on 1 Aug 1960. A constitution was adopted in 1977, based on a single Marxist-Leninist party. Despite persistent economic problems, factional fighting, frequent plots continued.

## Botswana

*Capital:* Gaborone, *Area:* 582,000 sq. km, *Population:* 1.6 m, *Language:* English, Setswana, *Literacy:* 74%, *Religion:* Christian, Hindu, Muslim, *Currency:* Pula, *Estimated GDP:* 5,070, *GNP per capita:* 3600, *People infected by AIDS:* 190,000, *Doctor per 1000 people:* 0.3.

The Republic of Botswana is bounded by Namibia (W and N), Zambia and Zimbabwe (NE), and South Africa (S). It has an arid plateau between the Zambesi and Molopo rivers, with the Kalahari desert in the south. In winter, days are warm and nights cold, with occasional frosts. Rain-fall comes mainly in summer. In addition to major revenues from beef and minerals, Botswana also collects valuable foreign exchange from the nationals working in South Africa.

The Tswana or Botswana (formerly known as Bechuanaland) became a colony to Britain in 1885. The British left day-to-day administration in the hands of the Tswana chiefs. Tswana chiefs set up an African Advisory Council in 1920. In 1960 Bechuanaland received its first constitution. On 30 Sept. 1966 Botswana got full independence with Sir S. Khama as the president. Many border clashes and other incidents between Botswana and S. Africa culminated in S. African raids on ANC offices in Gaborone.

## Burkina Faso

*Capital:* Ouagadougou, *Area:* 274,200 sq km., *Population:* 11.4 m, *Language:* French, Mossi, Bobo, *Literacy:* 19.2%, *Religion:* Aminist, Muslim, Christianity, *Currency:* CFA Franc, *Estimated GDP:* 2,395, *GNP per capita:* 240, *People infected by AIDS:* 370,000, *Doctor per 1000 people:* 0.0

The Republic of Burkina Faso is bounded by Mali (N and W), Niger (E), Benin, Togo and Ghana (S). Burkina Faso consist mainly of low-lying plateau crossed by the headwaters of the Black, Red and White Volta rivers. It has a tropical climate. The country's economy is heavily depend upon foreign aid. Major crops are sorghum, millet, yams, cotton, rice, peanuts.

Upper Volta was renamed Burkina Faso in 1984. France made Upper Volta a separate colony in 1919. Upper Volta remained desperately a poor country often hit by drought (1972-74 and 1982-84). A new constitution was drawn up and approved by referendum in 1977 and in 1978 elections were held to a new national assembly. From 1980 to 1983 three coup held Sankara regime.

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Rwanda	Kigali	1962
Sao Tome & Principe	Sao Tome	1975
Senegal	Dakar	1960
Seychelles	Victoria	1976
Sierra Leone	Freetown	1961
Somalia	Mogadishu	1960
South Africa	Pretoria	1945
Sudan	Khartoum	1956
Swaziland	Mbabane	1968
Tanzania	Dodoma	1961
Togo	Lome	1960
Tunisia	Tunis	1956
Wester Sahara	El Aaiun	-
Uganda	Kampala	1962
Zambia	Lusaka	1964
Zimbabwe	Harare	1980

## Algeria

*Capital:* Algiers, *Area:* 2381741 sq. km, *Population:* 30.2m, *Language:* Arabic, Berber, French, *Literacy:* 57%, *Religion:* Islam, *Currency:* Dinar, *Estimated GDP:* 47072, *GNP per capita:* 1550, *\*\*Doctor per 1000 people:* 0.8.

The Democratic and Popular Republic of Algeria is bordered by Mauritania, Morocco, and Western Sahara (W), the Mediterranean Sea (N), Tunisia and Libya (E). The Atlas Mountains divided northern Algeria into a coastal lowland strip (Tell) and a semiarid plateau (Chotts). About half of Algeria's work force are farmers, producing cereals, wine, citrus fruits, etc. Mining and manufacturing contribute a chunk of national income. Petroleum is the leading export item.

First Berber-speaking nomads settled there by the 2nd millennium B.C. Algeria was conquered by the Vandals (430-31), the Byzantine Empire (6th century), and the Arabs in 7th and 8th century. Spain captured in 15th century, but France invaded Algeria in 1830 and declared it a colony in 1848. A nationalistic Movement began to develop after World War I, and the National Liberation Front (FLN) broke out a war of independence in 1954. After a seven year of bloody fighting Algeria became independent on 3 July 1962. Since then Algeria has been one of the prominent non-aligned

states and a champion against white military rule in South Africa. In 1991 election, Islamic Salvation Front (FIS) won the first round, but second round election was cancelled. Since then a campaign of terrorism was launched by Moslem fundamentalists to the present day claiming more than 100,000 lives. More than 1,000 Algerians 'disappeared' after being arrested by government forces. It was a hope that parliamentary poll of June 1997 and local elections in Oct 1997 would brought to an end the violence. However, the opposition accused of ballot rigging, on the other hand the Algerian govt. blamed the slaughter on fanatical Islamists. The deadlock continues.

\*Gross Domestic Product (GDP) estimator in \$ millions of the year 1997 (World Development Indicators - 1999).

\*\* Doctor per 1000 people during the year 1990-97 (World Development Indicators - 1999).

## Angola

*Capital:* Luanda, *Area:* 1246,700 sq. km, *Population:* 12.0m, *Language:* Portuguese, Bantu, *Literacy:* 40%, *Religion:* Tribal and Christianity, *Currency:* New Kwanza, *Estimated GDP:* 7662, *GNP per capita:* 340, *People infected by AIDS:* 110,000, *Doctor per 1000 people:* 0.1.

The People's Republic of Angola is bordered by the Atlantic Ocean (W), Zaire (N), Zambia (E), and Namibia (S). Nearly all the land is desert or savanna except for the densely forested valleys of the north east and a narrow coastal strip in the west. The climate is tropical with low rainfall in the west but increasing inland. Formerly dependent on agriculture, Angola today receives over two-thirds of its export earnings from oil production. Major crops include: Coffee, sugarcane, maize, and wheat.

Angola remained under Portuguese control until its independence in 1975, but the Dutch captured for a brief period (1641-48). Angola was primarily a source of slaves for Portuguese colony in Brazil. Modern industrial development began only after World War II. In 1972 Angola was made an autonomous state. After a 16-year Civil War, it

The Central African Republic - formerly Ubangi Shari - is bounded by Chad (N), Sudan (E), Congo Demo Rep. (S), and Cameroon (W). The climate is tropical with little variation in temperature. More than 86% of the working population is occupied in subsistence agriculture. The main crops are: Cassava, groundnuts, bananas, beans, seed cotton, coffee and rice.

On 13 August 1960 the C. African Rep. became independent. The 1976 constitution provided for parliamentary democracy. From 1979 to July 1997 military coup, political unrest continued. Final ceasefire was concluded on 2 July 1997 between the mutineers and MISAB.

## Chad

*Capital:* N'Djamena, *Area:* 1284,000 sq. km, *Population:* 6.9 m, *Language:* French, Arabic, Tribal languages, *Literacy:* 48%, *Religion:* Islam, Animist, Christianity, *Estimated GDP:* 1603, *GNP per capita:* 230, *People infected by AIDS:* 87,000, *Doctor per 1000 people:* 0.0.

The Republic of Chad is bounded by Cameroon (W), Libya (N), Sudan (E) and Central African Rep (S). The climate is tropical with adequate rainfall and virtually rainless months. The economy is entirely based upon agriculture and animal husbandary.

Chad became an autonomous republic within the French Community on Nov 28, 1958 and achieved full independence on 11 Aug. 1960. Conflicts between the government and secessionist group led to civil war. Idriss Deby declared himself president on 4 Dec 1990.

## Comoros

*Capital:* Moroni, *Area:* 1862 sq. km, *Population:* 672,000, *Language:* Arabic and Comoran, *Literacy:* 57%, *Religion:* Islam and Christianity, *Currency:* Comorian Franc.

Federal Islamic Republic of the Comoros consist of 3 islands in the Indian Ocean between the African mainland and Madagascar. There is a tropical climate affected by Indian monsoon winds. The economy is one of the poorest in the world

and foreign companies own much of the land.

The three islands (Grande Comore, Anjouan, Moheli) achieved internal self-government in 1961. The Comorian chamber of Deputies declared the island's independence on 6 July 1975. In 1997 the islands of Anjouan and Moheli attempted to secede from the federation.

## Congo, Demo. Rep.

*Capital:* Winshasa, *Area:* 2,344,885 sq. km, *Population:* 49.2 m, *Language:* French, Lingala, *Literacy:* 72%, *Religion:* Christianity, Animism and Islam, *Currency:* Zaire, *Estimated GDP:* 6101, *GNP per capita:* 110, *People infected by AIDS:* 950,000, *Doctor per 1000 people:* 0.1

Democratic Republic of the Congo (formerly Zaire) is bounded by the C. african Republic (N), Sudan (NE), Uganda, Rwanda, Burundi (E), Zambia (S). It has a varied climatic condition. The economy is mainly supported by copper mines and diamond deposits. Major agricultural products are coffee, palm oil, rubber, sugarcane, maize, rice, etc. Textiles, wood products, metal items, beverages, food stuffs are main manufacturing units.

After gaining independence in 1960, the Belgian Congo was renamed to Zaire in 1971. After a long hostilities and arms race, the UN Security Council and president Mandela failed to draw a compromise between Kabila and Mobutu. On coming to power Kabila changed the name of the country to the Democratic Republic of the Congo. Hopes for democratic and economic renewal were soon disappointed because Kabila fully relied on his military backup, mainly from Rwandans and eastern Congolese from the Tutsi minority. When Zimbabwe and Angola sent troops to help president Kabila, full-scale civil war threatened, a ceasefire was negotiated in Nov. 1998, but the result was futile.

## Congo Rep

*Capital:* Brazzaville, *Area:* 342,000 sq. km, *Population:* 2.8 m, *Language:* French, Congo, Teke, *Literacy:* 57%, *Religion:* Christianity.

Animist, Muslim, Currency: CFA Franc, Estimated GDP: 2298, GNP per capita: 690, People infected by AIDS: 100,000, Doctor per 1000 people: 0.3

The Republic of the Congo is bounded by Cameroon and the C. African Re; (N), the Congo, Demo. Reps.(E&S), Angola and the Atlantic Ocean (SW), and Gabon (W). It has an equatorial climate with moderate rainfall and small range of temperature. Congo is rich in lead, zinc, copper and gold. Agricultural products are: Palm oil, cassava, coca, coffee, tobacco.

The Congo became a member of the French Community in 1958 and full independence was granted on 5 Aug 1960 under president Fulbert Youlou. F. Youlou was deposed in Aug. 1963 and followed military coup, civil war and social unrest. In June 1997 fighting broke out on the capital Brazzaville making it a ghost town

## Djibouti

Capital: Djibouti, Area 23,200 sq. km, Population: 652,000 Language: French, Arabic, Literacy: 46.2%, Religion: Islam, Christianity, Currency: Djibouti Franc

The Republic of Djibouti is bounded by Eritrea (NW), the Gulf of Aden (NE), Somalia (SE), and Ethiopia (SW). The climate is hot throughout the year with very little rain. With virtually no resources of its own and an unproductive soil, Djibouti has many of the problems common to the developing nations

The Republic of Djibouti was achieved on 27 June 1977. The Afar rebel in the north signed a 'Peace and National Reconciliation Agreement' with the government on 26 Dec. 1994, envisaging the formation of a national coalition govt. the redrafting of the electoral roll

## Egypt

Capital: Cairo, Area 1,001,449 sq. km, Population: 61.4 m, Language: Arabic (O), English, Religion: Muslim, Christianity, Jews, Greek Orthodox, Literacy: 51.4%, Currency: Egyptian Pound, Estimated GDP: 75,605, GNP per capita 1,230, Doctor per 1000 people: 1.8.

The Arab Republic of Egypt is bounded by Israel and Palestine, the Gulf of Aqaba and the Red Sea, Sudan (S), Libya (W), and the Mediterranean (N). The climate is mainly dry, but there are winter rains along the Mediterranean coast. The principal physiographic feature is the Nile river. Bordering the Nile between Aswan and Cairo are narrow strips of cultivated land. Cotton is the leading cash crop. Major manufactures include refined petroleum, chemicals, textiles and processed foods. The Suez Canal and tourism are major source of foreign exchange.

Egyptian civilization is one of the world's oldest civilizations, developed in the valley of the Nile over 5,000 years ago. During 3110-2258 BC Egyptian culture and commerce flourished and the great pyramids were built. After the Ramses dynasty (1200-1085 BC) Egypt came under foreign dominion, such as Libya, Sudan, Assyria, Nubia, and Persia. Alexander The Great conquered in 332 BC. However, with the Arab conquest (639-42) Egypt became an integral part of the Muslim world. Egypt was part of the Ottoman Empire from 1517 until 1922. On 28 February 1922 Egypt was declared an independent constitutional monarchy. In 1953 the monarchy was abolished. Col. Gamal Abdel Nasser became head of state on 14 June 1954 (president 1956) and remained in office until he died on 28 Sept 1970. In 1956 Egypt nationalised the Suez Canal. For ten years Egypt retained the name United Arab Republic (UAR) but on 11 Sept. 1971 a new constitution was approved by a referendum and renamed the country the Arab Republic of Egypt. On 6 Oct 1981 Muhammad Hosni Mubarak became president.

## Equatorial Guinea

Capital: Malabo, Area: 28,051 sq. km, Population: 430,000, Language: Spanish, Fang, English, Bantu, Literacy: 55%, Religion: Christianity, Currency: Franc CFA, Estimated GDP: 3,888, GNP per capita: 540, People infected by AIDS: 74,000, Doctor per 1000 people: 0.1.

The Republic of Equatorial Guinea, formerly Spanish Guinea, is bordered by Cameroon (N).

Gabon (E and S), and the Gulf of Guinea (W). The climate is equatorial with alternate wet and dry seasons. The economy is exclusive agricultural with cocoa beans, coffee, palm oil, and timber the principal cash crops.

Equatorial Guinea was one of the last African territories to become independent on 12 October 1968. In August 1979, a military coup overthrown president Francisco M. Nguema and executed. A Supreme Military Council ruled as the sole political body until constitutional rule resumed in 1982.

## Ethiopia

*Capital:* Addis Ababa, *Area:* 1,104,300 sq. km, *Population:* 62.1 m, *Language:* Amharic (O), English, Italian, *Literacy:* 50%, *Religion:* Christianity, Islam, *Currency:* Birr, *Estimated GDP:* 6381, *GNP per capita:* 100, *People infected by AIDS:* 2,600,000, *Doctor per 1000 people:* 0.0.

The Republic of Ethiopia is bounded by Eritrea (NE), Djibouti and Somalia (E), Kenya (S) and Sudan (W). The wide range of latitude produces many climatic variations between the high temperature plateaus and the hot, humid lowlands. It has an agrarian and pastoral economy. Major agricultural products are: Wheat, barley, maize, sugarcane, cotton, oil seeds and livestock.

In the 4th century Ethiopia became the first Christian country in Africa, but the rise of Islam prompted centuries of struggle and internal division. Emperor Tewodros reunited the nation in the 19th century. In 1936 Italian dictator Mussolini invaded and held the area until 1941. In 1987 the constitution was approved by referendum. In July 1991 a conference of 24 political groups agreed a democratic charter granting freedom of expression and association and right to self-determination for ethnic groups.

## Gabon

*Capital:* Libreville, *Area:* 267,667 sq. km, *Population:* 1.1 m, *Language:* French (O), Fang, Mpongwe, *Literacy:* 65%, *Religion:* Christian, traditional beliefs, Islam, *Currency:* Franc CFA,

*Estimated GDP:* 5153, *People infected by AIDS:* 23,000, *Doctor per 1000 people:* 0.5.

The Gabonese Republic is bounded by the Atlantic Ocean (W), Equatorial Guinea and Cameroon (N), and the Republic of the Congo (E and S). The climate is equatorial with high temperatures and considerable rainfall. Most of the country is covered by a dense tropical forest. Major cultivated crops are cocoa, coffee, rice, peanuts, sugarcane. The economy is chiefly dependent upon mining.

The French colonised Gabon around 1849 and was annexed to French Congo in 1888. The country became a separate colony in 1910 as one of the four territories of French Equatorial Africa. Gabon achieved full independence on 17 August 1960.

## The Gambia

*Capital:* Banjul, *Area:* 10,689 sq km, *Language:* English (O), Wolof, Fula, *Literacy:* 65%, *Religion:* Muslim, Christian, Animist, *Currency:* Dalasi, *Estimated GDP:* 407, *People infected by AIDS:* 13,000.

The republic of The Gambia (takes its name from the River Gambia) is bounded by the Atlantic Ocean (W) and all other sides by Senegal. The climate is characterised by dry and SW monsoon. Gambia's economy is heavily rely on a single crop peanuts. Tourism is the biggest foreign exchange earner.

The Gambia was discovered by the early Portuguese navigators. It became an independent Crown Colony in 1843. The Gambia achieved full independence on 4 Oct 1963. In a bloodless coup on 22 July 1994 a military junta seized power under the leadership of Lt. Yahya Jammeh.

## Ghana

*Capital:* Accra, *Area:* 238,305 sq km, *Population:* 18.3 m, *Language:* English (O), Local languages, *Literacy:* 65%, *Religion:* Christianity, Islam, *Currency:* Cedi, *Estimated GDP:* 6884, *GNP per capita:* 390, *People infected by AIDS:* 210,000, *Doctor per 1000 people:* 0.1



## Suez Canal

Suez Canal is the chief man-made waterway in the Eastern Hemisphere connecting the Mediterranean Sea (N) with the Gulf of Suez and the Red Sea(S), and greatly reducing the distance by sea between Europe and South and East Asia. It is 173 Km long (excluding 11 Km of approach channels to the harbours). It was built during 1859-69 by the French Engineer Ferdinand de Lesseps. By the convention of Constantinople of 29 Oct. 1868, the canal is open to vessels of all nations and is free from blockade except in time of war. The Canal has no lock system.

The Republic of Ghana is bounded by Cote d'Ivoire (W), Burkina Faso (N), Togo (E) and the Gulf of Guinea (S). The climate ranges from the equatorial type on the coast to savannah in the north. Agriculture is the backbone of the Ghana's economy. Leading crops are Kolanuts, palm products, bananas, coffee, maize and rubber. Timber, gold, diamonds, manganese are main export items.

Britain conquered Gold Coast in 1874 and made a colony. It became a protectorate in 1901. The state of Ghana came into existence on 6 March 1957 and on 1 July 1960 the country was declared a Republic within the Commonwealth. Military rule continued one after another. In a coup on 31 Dec. 1981 Flight-Lieut. Rawlings dismissed the government and parliament, suspended the constitution. A new pluralist democratic constitution was approved by referendum in April 1992.

## Guinea

*Capital:* Conakry, *Area:* 245,857 sq. km, *Population:* 7.6 m, *Language:* French (O), Malinke, Fula, *Literacy:* 36%, *Religion:* Muslim, Animist, Christianity, *Estimated GDP:* 3,888, *GNP per capita:* 540, *People infected by AIDS:* 74,000, *Doctor per 1000 people:* 0.1

The Republic of Guinea is bounded by Guinea-Bissau and Senegal (NW), Mali (NE), Cote d'Ivoire (SE), Liberia and Sierra Leone (S), and the Atlantic Ocean (W). It has a tropical climate with high rainfall near the coast and constant heat,

but conditions are a little cooler on the plateau. 80% people depend upon agriculture. Major crops are casava, sugarcane, bananas and palm kernels.

Guinea became a French protectorate in 1849 and in 1958 it declared an independent republic. For a time Guinea was isolated but in 1975 it joined its African neighbours in the Economic community of West African States. Following popular disturbances a multiparty system was introduced in April 1992.

## Guinea Bissau

*Capital:* Bissau, *Area:* 36,125 sq. km, *Population:* 1.1 m, *Language:* Portuguese (O), several African languages, *Literacy:* 55%, *Religion:* Islam, Christianity, traditional, *Currency:* Peso, *Estimated GDP:* 266, *People infected by AIDS:* 12,000, *Doctor per 1000 people:* 0.2.

The Republic of Guinea-Bissau is bounded by Senegal (N), the Atlantic Ocean (W) and Gulf (E and S). It has a tropical climate. Agriculture is the main occupation. Rice, coconuts, cassava sweet potatoes are important food crops. Industrial production mainly includes beer, soft drink aluminium.

Guinea-Bissau, formerly Portuguese Guinea became an Overseas Territory in 1951. From 1963 the PAIGC waged a successful Guerrilla war against Portuguese rule in Guinea. On 23-24 Sep. 1973 the national assembly proclaimed the independence of Guinea-Bissau. Independence was formally recognised on 10 Sept. 1974. On 16 Feb. 1984 a new constitution was approved which retained Marxist principles but in Nov. 1986 PAIGC Congress agreed to return to privatisation to weed out economic problems and to remove poverty.

## Ivory Coast

*Capital:* Yamoussoukro, *Area:* 320,783 sq. km, *Population:* 14.6 m, *Language:* French, Baule, Diula, *Literacy:* 54%, *Religion:* Islam, Christianity, *Currency:* CFA Franc.

The Republic of the Ivory Coast, Cote d'Ivoire, is bounded by Liberia and Guinea (N)

Mali and Burkina Faso (N), Ghana (E), and the Gulf of Guinea (S). It has a tropical climate affected by distance from the sea. Agriculture, fishing and forestry are the main stay of the country's economy. It exports cocoa, coffee and timber. Industrialisation developed rapidly after independence.

The Portuguese discovered Ivory Coast or the Cote d'Ivoire in the 15th Century. In 10 March 1893 Ivory Coast declared a French colony. In 1904 it became a territory of French West Africa and on 7 August 1960 Cote d'Ivoire achieved full independence with Felix Houphouët-Boigny as the president. He was succeeded by Henri Konan Bedie.

## Kenya

*Capital:* Nairobi, *Area:* 582,646 sq. km, *Population:* 30.34 m, *Language:* Swahili, English, Arabic, *Literacy:* 69%, *Religion:* Christianity, Muslim, traditional regions, *Currency:* Kenya Shilling, *Estimated GDP:* 10,240, *GNP per capita:* 330, *People infected by AIDS:* 1600,000, *Doctor per 1000 people:* 0.1.

The Republic of Kenya is bounded by Sudan and Ethiopia (N), Uganda (W), Tanzania (S), and Somalia and the Indian Ocean (E). The climate is tropical with wet and dry seasons. Coffee, tea, sisal are chief exports, coconuts, cashew nuts, cotton and sugarcane are also grown. Industry, which is expanding, includes petroleum-refining, food processing, cement, textiles. Kenya's protected wildlife attracts tourists.

The anthropological discoveries indicate that perhaps first human on earth probably inhabited in S. Kenya some 2 million years ago. The Portuguese first gained control of the Kenya coast but in 1729 Arabas expelled them. The British made it a colony. The inferior status of the blacks resulted in MAU MAU emergency (1952-56), an armed revolt against British rule, and in 1963 Kenya gained independence within the Commonwealth. In 1964-65 constitutional amendments provided for Kenya to become a republic. Daniel T. arap Moi elected president in 1979, 1983, 1988, 1992 and 1997. In 1997, the first genuinely

competitive elections.

## Lesotho

*Capital:* Maseru, *Area:* 30,335 sq. km, *Population:* 2.2 m, *Language:* Sesotho and English, *Literacy:* 74%, *Religion:* Christian, *Currency:* Loti (plural Maloti), *Estimated GDP:* 950, *GNP per capita:* 570, *People infected by AIDS:* 85,000, *Doctor per 1000 people:* 0.1

The kingdom of Lesotho, formerly Basutoland, is dominated by the Drakensberg mountain range. Lesotho is an enclave within South Africa. It has a healthy and pleasant climate with variable rainfall. Lesotho is heavily dependent upon S. Africa for economic support. Agriculture is the main occupation and livestock raising is important activity of the people. Industry mainly includes food processing.

In the 17th and 18th century refugees from various tribal wars entered the area, and in the early 19th century they were welded together into the Basuto nation by the paramount chief, Moshoeshoe. In 1868 Moshoeshoe placed his people under British protection. It gained independence in 1966 as Lesotho, becoming a member of the Commonwealth. Since then political unrest, military coup and suspension of the constitution continued. Presently foreign troops are in Lesotho to maintain law and order.

## Liberia

*Capital:* Monrovia, *Area:* 99,067 sq. km, *Population:* 2.7 m, *Language:* English, *Literacy:* 40%, *Religion:* Christianity, Islam, *Currency:* Liberian Dollar (US currency is the legal tender).

The Republic of Liberia is bordered by the Atlantic Ocean (SW), Sierra Leone (NW), Guinea (N), and Cote d'Ivoire (E). It has an equatorial climate with constant high temperatures and plentiful rainfall. The government derives a sizable income from registration of foreign ships under very flexible rules. People mainly depend upon agriculture. Industry mainly includes food processing and mining.

The American Colonization Society founded

## Suez Canal

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Britain conquered Gold Coast in 1874 and made a colony. It became a protectorate in 1901. The state of Ghana came into existence on 6 March 1957 and on 1 July 1960 the country was declared a Republic within the Commonwealth. Military rule continued one after another. In a coup on 31 Dec. 1981 Flight-Lieut. Rawlings dismissed the government and parliament, suspended the constitution. A new pluralist democratic constitution was approved by referendum in April 1992.

## Guinea

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The Republic of Guinea is bounded by Guinea-Bissau and Senegal (NW), Mali (NE), Cote d'Ivoire (SE), Liberia and Sierra Leone (S), and the Atlantic Ocean (W). It has a tropical climate with high rainfall near the coast and constant heat,

but conditions are a little cooler on the plateau. 80% people depend upon agriculture. Major crops are casava, sugarcane, bananas and palm kernels.

Guinea became a French protectorate in 1849 and in 1958 it declared an independent republic. For a time Guinea was isolated but in 1975 it joined its African neighbours in the Economic community of West African States. Following popular disturbances a multiparty system was introduced in April 1992.

## Guinea Bissau

*Capital:* Bissau, *Area:* 36,125 sq. km, *Population:* 1.1 m, *Language:* Portuguese (O), several African languages, *Literacy:* 55%, *Religion:* Islam, Christianity, traditional, *Currency:* Peso, *Estimated GDP:* 266, *People infected by AIDS:* 12,000, *Doctor per 1000 people:* 0.2.

The Republic of Guinea-Bissau is bounded by Senegal (N), the Atlantic Ocean (W) and Guinea (E and S). It has a tropical climate. Agriculture is the main occupation. Rice, coconuts, cassava, sweet potatoes are important food crops. Industrial production mainly includes beer, soft drink, aluminium.

Guinea-Bissau, formerly Portuguese Guinea became an Overseas Territory in 1951. From the PAIGC waged a successful Guerrilla against Portuguese rule in Guinea. On 23-24 1973 the national assembly proclaimed the independence of Guinea-Bissau. Independence was formally recognised on 10 Sept. 1974. On 11 1984 a new constitution was approved which retained Marxist principles but in Nov. 1991 PAIGC Congress agreed to return to private enterprise to weed out economic problems and to reduce poverty.

## Ivory Coast

*Capital:* Yamoussoukro, *Area:* 320,000 sq. km, *Population:* 14.6 m, *Language:* French, *Religion:* Islam, Christianity, *Currency:* CFA Franc.

The Republic of the Ivory Coast, D'Ivoire, is bounded by Liberia and Guinea

## Mali

*Capital:* Bamako, *Area:* 1,248,574 sq. km, *Population:* 11.8 m, *Language:* French(O), Bambara, Senoufo, *Literacy:* 31%, *Religion:* Muslim, Animist, Christian, *Currency:* Franc CFA, *Estimated GDP:* 2532, *GNP per capita:* 250. People infected by AIDS: 89,000, *Doctor per 1000 people:* 0.1

The Republic of Mali is bordered by Algeria (N), Niger (E&SW), Burkina Faso and Ivory Coast (S), and Guinea, Seegal (W). It has a tropical climate with adequate rain in the south and west, but conditions become increasingly arid towards the north and east. Cotton and peanuts and chief cash crops, subsistence crops include rice, maize, sorghum, and millet. Fish from Niger and livestock are exported.

The French conquered the Mali area by 1898 and Mali (then called French Sudan) became part of French West Africa. Between the two World Wars a nationalistic movement developed. Mali proclaimed itself an independent republic on 22 Sept 1960 with Keita as president. Under its current president, Alpha Oumar Konare, two elections for the National Assembly have been held, but 1997 election was boycotted by opposition parties.

## Mauritania

*Capital:* Nouakchott, *Area:* 1,030,700 sq. km, *Population:* 2.5 m, *Language:* Arabic, French, Wolof, *Literacy:* 40%, *Religion:* Islam, *Currency:* Ouguiya, *Estimated GDP:* 1097, *GNP per capita:* 410, People infected by AIDS: 6100, *Doctor per 1000 people:* 0.1.

The Islamic Republic of Mauritania is bordered by the Atlantic Ocean (W), Morocco (N), Algeria (NE), Mali (E & SE) and Senegal (SW). It has a tropical climate but conditions are generally arid. Most of the country is low-lying desert, forming part of the Sahara. The economy is divided between a traditional agriculture sector and a modern mining industry. The fishing industry is rapidly growing.

France gained control of South Mauritania in the mid-19th century, declared a protectorate over the region in 1903, and made it a separate colony in French West Africa in 1920. After World War II nationalist outlook developed, and in 1960 Mauritania gained full independence. A muslim state was created in 1961. In April 1991 Ahmed Tayx announced a new constitution allowing a multi-party political system. Thereafter election were dominated by president Taya and his Democratic and Socialist Republican Party.

## Muritus

*Capital:* Port Louis, *Area:* 2046 sq. km, *Population:* 1.2 m, *Language:* English, French, Creole, *Literacy:* 83%, *Religion:* Hinduism, Christianity, Islam, *Currency:* Rupee, *Estimated GDP:* 4398, *Doctor per 1000 people:* 0.5.

The Republic of Mauritius is in the South-West Indian Ocean, 800 Km. east of Madagascar. It is surrounded by coral reefs, the principal island consists of a central plateau and volcanic mountains. The economy is predominantly dependent upon sugarcane cultivation. Tourism, tea production, fishing, light industry are being developed to diversify the economy.

Mauritius was occupied by the Dutch (1598-1710) and in 1715 the French established a colony. The British captured the island in 1810. Independence was achieved in 1967. When unemployment soared, sugar boom ended and frustrated social position led to 1982 election. The MMM (Movement Militant Mauricien) was replaced by a Hindu-dominated coalition headed by Anerood Jugnauth, re-elected in 1987. Mauritius became a republic on 12 March 1992.

## Morocco

*Capital:* Rabat, *Area:* 445,050 sq. km, *Population:* 28.0 m, *Language:* Arabic (O), Berber, *Literacy:* 50%, *Religion:* Islam, *Currency:* Dirham, *Estimated GDP:* 33,514, *GNP per capita:* 1250, *Doctor per 1000 people:* 0.4.

The Kingdom of Morocco is bordered by the Mediterranean Sea (N), the Atlantic Ocean (W),

Liberia, in 1821 as a haven for free American slaves. The first American Negroes arrived in 1822 and on 26 July the state was constituted as the Free and Independent Republic of Liberia. Under the presidentship of Edwin Barclay (1930-44) and William V.S. Tubman (1947-71), Liberia opened for international investment, gave tribal people a greater voice in the country's affairs. After a long year of turbulence a peace agreement was signed between the govt. and ECOWAS on 17 August 1996. The decade long civil war killed up to 200,000 people and 1 m houseless. Charles Taylor elected president in July 1997 election.

## Libya

*Capital:* Tripoli, *Area:* 1,775,500 sq. km, *Population:* 6.0 m, *Language:* Arabic, English, Italian, *Literacy:* 76%, *Religion:* Islam, *Currency:* Libyan Dinar.

The Socialist People's Libyan Arab Jamahiriya is bordered by Algeria and Tunisia (W), the Mediterranean Sea (N), Egypt and Sudan (E), and Chad and Niger (S). The coastal region has a warm temperate climate with mild wet winters and hot dry summers, although most of the country suffers from aridity. Wheat, barley, dates, almond, olives and citrus fruits are main agricultural products. Important industries are fishing, dyeing, textile and oil processing.

From 1551 to 1911 Libya was part of the Ottoman Empire. Italy seized in 1911 and on 24 Dec 1951 Libya became an independent sovereign. In 1977 the country's name was changed to Great Socialist People's Libyan Arab Jamahiriya (Jamahiriya means state of the masses). The UN and US imposed sanctions on Libya because it refused to surrender suspects in the 1988 bombing of a Pan Am flight in Scotland. In April 1999, Libya handed over 2 men suspected to be tried in the Netherlands but under Scottish law.

## Madagascar

*Capital:* Antananarivo, *Area:* 587,041 sq. km, *Population:* 16.3 m, *Language:* Malagasy and French, *Literacy:* 80%, *Religion:* Christianity,

animist, Muslim, *Estimated GDP:* 3546, *GNP per capita:* 260, *People infected by AIDS:* 8600, *Doctor per 1000 people:* 0.1.

The Democratic Republic of Madagascar formerly Malagasy Republic, is situated off the south-east coast of Africa from which it is separated by the Mozambique channel. The island Madagascar is a largely deforested highland plateau fringed by a lowland coastal strip. It has tropical climate, but the mountains cause big variation in rainfall. The economy is predominantly agricultural. Large numbers of livestock and poultry are raised. Industrial production is mostly confined to textiles and food processing. About 2000 years ago Black Africans and Indonesians first reached Madagascar, Muslim traders joined them in 15th century. On 6 August 1896 Madagascar became a French Colony and on 26 June 1960 it achieved full independence. A new constitution instituted the Third Republic in September 1992.

## Malawi

*Capital:* Lilongwe, *Area:* 24,208 sq. km, *Population:* 10.4 m, *Language:* English, Chichewa, *Literacy:* 56%, *Religion:* Christianity, Muslim, Animists, *Currency:* Kwacha, *Estimated GDP:* 2511, *GNP per capita:* 200, *People infected by AIDS:* 710,000, *Doctor per 1000 people:* 0.0.

The Republic of Malawi, formerly Nyasaland is bordered by Zambia (W), Tanzania (N), and Mozambique (E, S, and SW). About one-fifth of the country is occupied by Lake Malawi, in the Great Rift Valley, the remainder is largely a high plateau. It has a tropical climate. The economy is overwhelmingly agricultural. Large numbers of poultry, goats, cattle and pigs are raised.

In 1891, the British Protectorate of Nyasaland. After the World War II, the Nyasaland African Congress was formed to lead a new wave of resistance against the impending federation of the country to two neighbouring British colonies. On 6 July 1964 Nyasaland became independent, adopting the name of Malawi. After 30 years of one party dictatorship, Malawi returned to multiparty democracy.

The Republic of Niger is bordered by Burkina Faso and Mali (W), Algeria and Libya (N), Chad (E), Nigeria and Benin (S). The landlocked country is largely semidesert or part of the Sahara. The country lacks water with the exception of the south-western districts which are watered by Niger and its tributaries.

About 90% of the crop is sorghum or millet, sorghum raising is also important. Basic consumer goods. Niger is one of the world's leading producers of uranium.

France took control in 1893 and in 1899. It became an autonomous republic within the French Community in 1959. Independence on 3 Aug 1960.

In a bloodless coup the army chief of staff Gen. Modibo Keita deposed president Ousmane Niassara. He began to rule through a Council of Ministers. Niassara was assassinated by bodyguards at Niamey airport, and a week after Daouda Mallam Nasser succeeded Niassara.

## Nigeria

Capital: Abuja, Area: 923,773 sq. km, Population: 121.8 m, Language: English, Hausa, Edo, Literacy: 52%, Religion: Islam, Christianity, Ewe, Currency: Naira, E.

Per capita: 300, People infected by AIDS: 500,000, Doctor per 1000 people: 0.2

The Federal Republic of Nigeria is bordered by the Gulf of Guinea (S), Benin (W), Niger (NW), Chad (NE) and Cameroon (E). Most of the country is drained by the Niger River and its tributaries. Oil production is the mainstay of the economy. Agriculture employed about 70% of the workforce. Livestock raising, forestry and fishing are also important. Mineral production includes coal, iron ore, lead, zinc, and uranium. In 1961 Britain captured Lagos. Later in June 1963 Lagos known as the Oil Rivers Protectorate was expanded and renamed as Niger Coast Protectorate in 1893. After the World War II

nationalistic outlook began to grow and political parties demanded for independence. On October 1, 1960, full independence was achieved by the Federation of Nigeria. After independence military coup and civil war took the control of the country one after another. Civil war, army military, political

once led his country as part of a military junta, he out victorious.

## Rwanda

Capital: Kigali, Area: 26,338 sq. km, Population: 6.5 m, Language: Rwanda, French, Swahili, Literacy: 50%, Religion: Christianity, Islam, Animism, Estimated GDP: 1853, GNP per capita: 230, People infected by AIDS: 370,000, Doctor per 1000 people: 0.0, Currency: Rwanda Franc.

The Republic of Rwanda is bordered by Zaire (W), Uganda (N), Tanzania (E), and Burundi (S). Most of the country is consisting of steep mountains and deep valleys. Despite the equatorial situation, there is a highland tropical climate. The economy is predominantly agricultural, largely of the subsistence type. Manufacturing is limited to basic consumer goods, textiles and chemicals. Coffee and tea make up 80-85% of total exports. Due to excessive grazing in the lowlands land erosion and disappearance of natural vegetation is rampant.

From the 16th century to 1959, the Tutsi Kingdom of Rwanda shared the history of Burundi. In 1959, an uprising of the Hutu destroyed the Tutsi feudal hierarchy and overthrew the monarchy. The election in Sept 1959 under auspices of the UN resulted overwhelming majority for the republican party, the Parmehutu, and rejection of the monarchy. On July 1962 Rwanda became independent. A new constitution was accepted by a national referendum. The conflict between the Hutu and Tutsi resulted mass killing. The UN forces and French Forces helped the govt. to restore law and order. It is estimated that more than 1m Rwandans were killed in 1994 through genocide and the civil war and more than 2m were forced



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Article Year Book 2000

**Rwanda**  
 Capital: Kigali Area: 26,338 sq. km. Popu-  
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to flee to neighbouring countries. The UN forces left Rwanda on March 1996. In Sept. 1998 Jan Kamukabanda, former prime minister, was sentenced to life imprisonment for his role in the 1994 genocide.

### Sao Tome and Principe

*Capital:* Sao Tome, *Area:* 964 sq. km, *Population:* 144,000. *Language:* Portuguese, Fang, *Religion:* Christianity, *Currency:* Dobra.

The Democratic Republic of Sao Tome and Principe is in the Gulf of Guinea, just off the west coast of Africa. Lying north of the equator, the islands are covered with thick vegetation. It has a tropical climate modified by altitude and the effect of the cool Benguela current. The economy is based entirely on the export of tropical produce, especially cocoa, palm oil, coffee, copra and bananas.

The Portuguese navigators discovered Sao Tome and Principe on 21 Dec 1470. It was a centre of slave trading depot for South America. Sao Tome and Principe became an overseas province in 1951, and finally gained independence on 12 July, 1975.

### Senegal

*Capital:* Dakar, *Area:* 196,190 sq km, *Population:* 9m, *Language:* French (O), and ethnic, *Literacy:* 30%, *Religion:* Islam, Christianity, Animism, *Currency:* Franc, *Estimated GDP:* 4542, *GNP per capita:* 530, *People infected by AIDS:* 75,000, *Doctor per 1000 people:* 0.1

The Republic of Senegal is bounded by Mauritania (N and NE), (E), Guinea and Guinea-Bissau (S), and the Atlantic (W). Most of the country is low lying and covered with Savanna, which becomes semi-desert in the Sahel region of the north. It has a tropical climate with wet and dry seasons. Senegal is primarily agricultural, but industry is expanding. The main crops are millet, manioc, sorghum and rice. Industries include the manufacture of cement, chemicals, textiles and fertilisers.

During the 14th and 15th centuries, Senegal was part of the Mali empire. It became a territory of French West Africa in 1902 and an autonomous

state within the French community on 25 Nov. 1959. On 22 August 1960 Senegal withdrew from the Federation of Mali and became a separate independent republic.

### Seychelles

*Capital:* Victoria, *Area:* 455 sq. km, *Population:* 77,500. *Language:* French, Creole, English, *Literacy:* 84%, *Religion:* Christianity, *Currency:* Seychelles Rupee.

The Republic of Seychelles consists of 1 islands in the Indian Ocean, north of Madagascar in two distinctive groups: Granitic group of 32 islands and the Outer or Coralline group of 83 islands. Though close to the equator, the climate is tropical. Copra and cinnamon are the principal exports, fishing and tourism are being rapidly developed.

The Seychelles was discovered by Vasco da Gama in 1502. Britain took possession of the island of the islands in 1794 and it became a crown colony in 1903. It achieved independence as a republic within the British Commonwealth on 29 June 1976. A new constitution came into force on July 5, 1979. Again a new constitution approved in June 1993, which allowed President Rene to elect for the second time.

### Sierra Leone

*Capital:* Freetown, *Area:* 73,326 sq. km, *Population:* 4.6m, *Language:* English and tribal, *Literacy:* 31%, *Religion:* Traditional, Muslim, Christianity, *Estimated GDP:* 823, *GNP per capita:* 140, *People infected by AIDS:* 68,000.

The Republic of Sierra Leone is bordered by the Atlantic Ocean (W), Guinea (N and E), and Liberia (S). The eastern half of the country is mostly mountainous. It has a tropical climate with marked wet and dry seasons and high temperatures throughout the year. Sierra Leone's economy is predominantly agricultural. Cocoa, coffee, and palm kernels are the leading cash crops. Large numbers of livestock and poultry are raised. Minerals are the main source of income.

Sierra Leone declared a British protectorate

on 21 August 1896. In 1951 first constitution was introduced and became a republic on 19 April 1971, with Dr. Siaka Stevens as executive president. Stevens remained in power until 1985. Military coup, civil war continued. In Jan 1999 Nigeria sent troops to Sierra Leone to support president Kabbah. The 10 year civil war reduced Sierra Leone to one of the poorest countries in the world.

## Somalia

*Capital:* Mogadishu, *Area:* 637,657 sq.km, *Population:* 10.7m, *Language:* Somali, Arabic, English, *Literacy:* 24%, *Religion:* Islam, *Currency:* Somali Shilling.

Somali Democratic Republic is bounded by the Gulf of Aden (N), the Indian Ocean (E and S) and Kenya, Ethiopia and Djibouti (W). The country is arid and stretches, with a barren coastal low-land which stretches to the northern and western highlands. Much of the country is arid, though rainfall is more adequate towards the south. Herding of camel, sheep, goats and cattle is principal occupation. Major cash crops are: bananas, sugarcane. Processing of raw materials constitute the bulk of the small but growing industry.

The origins of the Somali people can be traced back 2000 years. During 10th century they were converted to Islam and in 19th century organised as an Islamic state. British made it a protectorate in 1884. The independent Somali Republic came into being on 1 July 1960 as a result of merger of British Somaliland Protectorate and the Italian Trustsheep Territory of Somaliland. In 1969 Maj-Gen. Mohammed Siyad took power in a coup, suspended constitution and named Somali Democratic Republic. The Somali National Movement, the principal insurgent group, declared the secession of an independent 'Somaliland Republic'. Clan warfare broke out in Hargeisa in November 1994, but on 20 Jan. 1997 Ali Mahdi Muhammad and Hussein Aidid factions agreed to unify the city.

## South Africa

*Capital:* Pretoria (administrative), Cape Town

(legislative), Bolefontein (Judicial), *Area:* 1223,201 sq. km, *Population:* 44.3m, *Language:* English, Afrikaans, Zulu, Xhosa, *Literacy:* 82%, *Religion:* Christianity, Hinduism, Islam, *Currency:* Rand, *Estimated GDP:* 129094, *GMP per capita:* 2880, *People infected by AIDS:* 2900,000, *Doctor per 1000 people:* 0.6.

The Republic of South Africa is bordered by the Atlantic Ocean (W), Namibia (NW), Botswana and Zimbabwe (N), Mozambique and Swaziland (E), and the Indian Ocean (E and S). The republic is divided into four provinces: Cape province, Natal, Orange Free State, and Transvaal. There is abundant sunshine and relatively low rainfall. The south-west has a Mediterranean climate. The economy of S. Africa is highly advanced and diversified. Mining is the backbone of the country's wealth, now industry has picked up. Agriculture, stock-raising, forestry, fishing and tourism are important.

The first permanent European settlement was set up in S. Africa in 1652. Britain replaced the Dutch at the Cape in 1795 and was awarded the territory by the Congress of Vienna in 1814. Disturbed by British rule some 12,000 people left the cape into the interior and Natal. Britain annexed Natal in 1843. The discovery of diamonds (1857) and gold (1886) spurred great economic development. Following increasing tension between the non-Afrikaner whites (Uitlanders) and the dominant Afrikaners, the two Boer republics declared war on Britain. The South African War (Boer War, 1893-1902) was won by the British who established the Union of South Africa in 1910. Under the Prime Minister J.B.M. Hertzog (of Afrikaner Nationalist Party) S. Africa gained final British recognition of independence in 1961. S. Africa joined World War II on the Allied side. Through the policy of APARTHEID white supremacy was strengthened. In 1961 it became a republic and left the Commonwealth. Government's refusal to yield control over Namibia and rigid support of apartheid led to growing international ostracism. After a 30 year ban on the African National Congress (ANC) in February 1990

Nelson Mandela was released from prison and Apartheid came to an end. A transitional Constitution was approved by the parliament and a multi-racial parliament was elected in April 1994 with Nelson Mandela as the president. S. Africa rejoined the Commonwealth in 1994. Recently Robato Mbeki succeeded Mandela as the President of S. Africa.

## Sudan

*Capital:* Khartoum, *Area:* 2,505,813 sq. km, *Population:* 28.5 m, *Language:* Arabic (O), English, *Literacy:* 46%, *Religion:* Muslim, Christian, *Currency:* Dinar (legal tender: Sudanese Pound), *Estimated GDP:* 10224.

The Republic of Sudan is bordered by Egypt (N), the Red Sea (NE), Ethiopia (E), Kenya, Uganda and Zaire (S), Chad (W), and Libya (NW). The Nile River forms the most important geographical feature. Sudan has a continental climate but only the Red Sea coast experiences maritime influences. Agriculture is the mainstay of economy. Cotton is the major export item, other crops include groundnuts, wheat, rice, gum arabic, sesame, wheat, rice. Livestock rearing is important. Small mining industry includes iron, gold and manganese.

On 1 January 1956 Sudan became independent. Fearing the dominance by the Muslim north, a 17 year civil war broke out between north and south region. Civil war came to an end towards 1972 when southern Sudan received considerable dominance. Thereafter followed civil and military regimes. Again fighting civil war broke out in Jun. 1997. Sudanese government accepted a 'Declaration of Principles' to end the civil war. South Sudan was badly hit by the civil war. In July 1998 famine hit southern areas of the country. The USA cruise missile attacks in Khartoum, Sudan, in response to the bombings of the US embassies in Kenya and Tanzania in which 263 people were dead. In Feb. 1994 a federal system of 26 states was set up. The states are subdivided into 65 provinces and 218 districts.

## Swaziland

*Capital:* Mbabane, *Area:* 17,366 sq. km, *Population:* 966,000, *Language:* English and Siswati (O), *Literacy:* 77%, *Religion:* Christianity, Animists, *Currency:* Lilangeni.

The Kingdom of Swaziland is bordered by South Africa (S,W,N), and Mozambique (E). The country is mountainous with step-like plateaus. Swaziland has a temperate climate with two seasons: wet season (Nov to March) and cool, dry season (May to Sept). Country's economy is mainly dependent upon agriculture, forestry, ranching. Major export items are sugar, wood pulp, and cattle. Swaziland has considerable mineral deposits, most important are coal and asbestos.

Swaziland became a British High Commission Territory in 1903 and gained full independence within the Commonwealth in 1968 under King Sobhuza II. After the death of Sobhuza II in 1982, power struggle continued among his royal members. The Swazi government is yet to resolve conflicts over the rule of royal family and country's relation within South Africa.

## Tanzania

*Capital:* Dodoma, *Area:* 945,037 sq. km, *Population:* 32.2m, *Language:* Swahili (O), English, *Literacy:* 67.8%, *Religion:* Christianity, Islam, Hindu, *Currency:* Tanzanian Shilling, *Estimated GDP:* 6920, *GNP per capita:* 210, *People infected by AIDS:* 1400,000, *Doctor per 1000 people:* 0.0

The United Republic of Tanzania is bordered by Mozambique, Malawi and Zambia (S), Zaire, Burundi and Rwanda (W), Uganda and Kenya (N) and the Indian Ocean (E). The climate is quite varied with hot and humid coast, drier central plateau, and semi-temperate mountains. Agriculture supports major chunk of the country's economy. Sisal, cotton, coffee and cashew nuts are the major cash crops and export items. Tourism is growing. Tanzania is one of the leading producers of diamonds.

Vasco da Gama visited Tanzania in 1498. German made the territory a protectorate in 1891.

During World War I, the Allies conquered and Tanganyika made a British mandate. It became independence as a Commonwealth member in 1961. IN 1964 Tanganyika merged with Zanzibar to form the United Republic of Tanzania. But regional parliaments for Zanzibar and Tanzania (Tanganyika) were set up in 1993. On 29 October 1995 presidential election, Benjamin Mkapa elected president.

## Togo

*Capital:* Lome, *Area:* 57,785 sq. km, *Population:* 4.32m, *Language:* French (O), Ewe, Twi, *Literacy:* 52%, *Religion:* Animist, Christian, Islam, *Currency:* Franc CFA, *Estimated GDP:* 1475, *GNP per capita:* 330, *People infected by AIDS:* 170,000, *Doctor per 1000 people:* 0.1.

The Republic of Togo is bordered by the Gulf of Guinea (S), Ghana (W), Burkina Faso (N), and Benin (E). The country has a tropical climate. Agriculture and mining are majorstay of the economy. Principal crops are manioc, millet, yams, coffee, coca, cotton, groundnuts. Large quantities of high quality phosphates mining is the leading export item of Togo.

Formerly German protectorate of Togoland gained independence from France as the republic of Togo in the year 1960. Political instability is the hallmark of Togo. In 1992 a new constitution was approved by referendum. Gen. Gnassingbe Eyadema re-elected president on 21 June 1998.

## Tunisia

*Capital:* Tunis, *Area:* 154,530 sq. km, *Population:* 9.5m, *Language:* Arabic (O), French, *Literacy:* 67%, *Religion:* Islam, *Currency:* Dinar, *Estimated GDP:* 18937, *GNP per capita:* 2050, *Doctor per 1000 people:* 0.6.

The Republic of Tunisia is bordered by Algeria (W), the Mediterranean Sea (N,E), and Libya (SE). The irregular coastlines has several harbours. The climate ranges from warm temperate to hot and dry. Agriculture is the basic supporting factor of the country's economy, mining

and tourism are also important. Agricultural products are wheat, barley, grapes, olives, citrus fruits.

The Arabs conquered Tunisia in the 7th century and converted the Berber population to Islam. It became a French protectorate in 1881. Nationalism grew after World War II and in 1955 Tunisia achieved independence. President Bourguiba was overthrown by a bloodless coup and the regime of his successor, Zine El Abidine Ben Ali, marred by fighting with Islamic fundamentalists, social unrest, and frequent suspension of political rights.

## Uganda

*Capital:* Kampala, *Area:* 241,038 sq. km, *Population:* 21.3m, *Language:* English, Swahili, *Literacy:* 62%, *Religion:* Christianity, Animist, Islam, *Currency:* Uganda Shilling, *Estimated GDP:* 6582, *GNP per capita:* 320, *People infected by AIDS:* 930,000.

The Republic of Uganda is bordered by Tanzania and Rwanda (S), Zaire (W), Sudan (N), and Kenya (E). Most of Uganda is fertile plateau. Though it is in equatorial latitudes, the climate is tropical. The economy is mainly supported by agriculture. Major agricultural productions include cassava, millet, sorghum, coffee, tea, cotton, tobacco. Fisheries, forestry are also important.

Uganda achieved fully independent membership of the Commonwealth in 1952. But under the leadership of A. Milton Obote, a new constitution was adopted in 1955 abolishing traditional kingdoms. Political disturbance, social upheaval, insurgent activity, military control are the features of post-independent Uganda. H.E Yoweri K. Museveni re-elected president in 1996.

## Zambia

*Capital:* Lusaka, *Area:* 752614 sq. km, *Population:* 8.7m, *Language:* English (O), Bemba, Lozi, *Literacy:* 73%, *Religion:* Christianity, Islam, *Currency:* Kwacha, *Estimated GDP:* 3865, *GNP per capita:* 330, *People infected by AIDS:* 770,000, *Doctor per 1000 people:* 0.1.

The Republic of Zambia is bordered by Zaire (N), Tanzania (NE), Malawi and Mozambique (E), Zimbabwe, Botswana and Namibia (S), and Angola (W). It has a tropical climate. The economy is depend almost fully on mineral wealth. Major mineral resources are copper, cobalt, coal, zinc, lead, manganese. Most people depend on agriculture, maize, groundnuts, tobacco.

Zambia passed to British administration in 1924. In 1953 the British formed the Federation of Rhodesia and Nysaland by uniting S. Rhodesia (present Zimbabwe). However, the federation dissolved in 1963 and the Republic of Zambia proclaimed independent within the Commonwealth in 1964. Northern Rhodesia changed its name to Zambia. In August 1991 a new constitution was adopted. Frederick Chiluba re-elected present in November 1996.

## Zimbabwe

*Capital:* Harare, *Area:* 390,759 sq. km, *Population:* 11.9m, *Language:* English (O), Ndebele,

*Literacy:* 85%, *Religion:* Christianity, Islam, traditional, *Currency:* Dollar, *Estimated GDP:* 8906, *GNP per capita:* 610, *People infected by AIDS:* 1500,000, *Doctor per 1000 people:* 0.1.

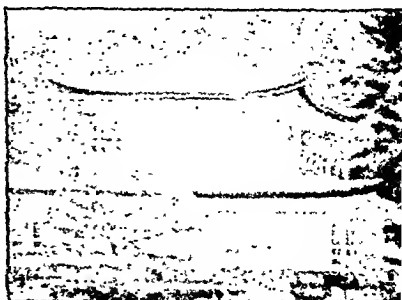
The Republic of Zimbabwe is bordered by Zambia (N), Mozambique (NE,E), and Botswana (SW and W). Most of the country consists of a high plateau. It has a temperate climate. Agriculture and mining are the mainstay of country's economy. Principal cash crops include tobacco, maize, tea, cotton, and groundnuts. Gold and nickel are leading export minerals. Forestry and fisheries are also important.

After the dissolution of the Federation of Rhodesia and Nysaland (see Zambia) Southern Rhodesia reverted to a status of self governing colony within the British Commonwealth. A new state of Zimbabwe came into being in 1980 as a member of the Commonwealth. The state of emergency imposed since 1965, was lifted in July 1990. In presidential election in 17 March 1996 Mugab re-elected president unopposed.

# ASIA

Asia is the world's largest continent with an area of 44,390,000 sq. km. In the west it joined with Europe (which may be considered a peninsula of Asia) to form the great Eurasian land mass. Asia ranges in elevation from Mt. Everest (8850 m, world's highest mountain) to 394 m below the sea level at the Dead Sea (world's lowest point). From east to west Asia is traversed by a massive central highland region with Tibetan Plateau, the Himalayas, the Hindu Kush, and other great mountain ranges. The continent has every type of climate from tropical to polar and from desert to rainy.

Asia was the motherland of some of the world's earliest civilizations. Today the continent contains more than 60% of the world population. The annual river valleys of the Ganges (in India)



and the Yangtze and Huang He (in China) are some of the greatest population densities of the world.

Following are given the countries of Asia, their capital and the year of admission to the UN of the respective countries.

Name of the Country	Year of admission	Capital	Dari, Persian, Religion : Islam, Currency : Afghani, Estimate GDP* : 1810, Literacy : 32%, ** Doctor per 1000 people : 0.7
Afghanistan	1946	Kabul	The Republic of Afghanistan in South central Asia, is bordered by Iran (W), Pakistan (E and S), the USSR (N) and China (NE). Most of Afghanistan is mountainous, towering ranges of Hindu Kush, fertile valleys and plains. The land is mainly dry and rivers are used for irrigation. The economy is mainly depend upon agriculture. Chief cultivated crops are corn, barley, rice and fruits, and sheep are raised for skins, wool and meat. Industry and infrastructural development are still in infant stages. Imports exceed exports in Afghanistan.
Baharain	1971	Manama	
Bangladesh	1974	Dhaka	Afghanistan has fallen to many conquerors through the ages. Under Ahmad Shah Afghanistan became a united state. Britain fought two wars with Afghan to protect its empire in India against Russian expansion. However in the third war (1919) emir Amanullah gave full independence to Afghanistan. Amanullah started sweeping programme of modernisation and in 1926 proclaimed a monarchy to replace the emirate. Lt Gen. Muhammad Daoud Khan who proclaimed a republic was killed in 1978 in a coup and a Marxist regime installed headed by the people's Democratic Party of Afghanistan (PDPA). In 1979 a Soviet backed coup killed president Hafizulla Amin and replace him with Babrak Karmal, leader of PDPA faction. In 1986 Karmal was replaced by Maj. Gen Mohammad Najibullah. Soviet troops were withdrawn in 1989. In 1994 a newly Islamic movement 'Taliban' (students of religion) formed and overthrown Rabbani in Sept 1995 and executed former president Najibullah. Afghanistan was declared a complete Islamic state under Sharia law thereafter. On 20 Aug. 1998 the USA launched cruise missile attack against Khawst, which USA claimed one of the most active terrorist base camp in the world.
Bhutan	1974	Thimpu	
Brunei	1984	Bandar Seri Bagawan	Bahrain
Cambodia	1955	Phnom-Penh	
China	1945	Beijing	Capital : Manama Area : 578 sq. km. Population : 594,000, La.
Cyprus	1960	Nicosia	
Hong Kong	—	Victoria	
India	1945	New Delhi	
Indonesia	1950	Jakarta	
Iran	1945	Teheran	
Iraq	1945	Baghdad	
Israel	1949	Jerusalem	
Japan	1956	Tokyo	
Jordan	1955	Amman	
Kuwait	1963	Kuwait City	
Laos	1955	Vientiane	
Lebanon	1945	Beirut	
Macao	—	Macao	
Malaysia	1951	Kuala Lumpur	
Maldives	1965	Male	
Mongolia	1961	Ulan Bator	
Myanmar	1948	Rangoon	
Nepal	1955	Kathmandu	
North Korea	1991	Pyongyang	
Oman	1971	Muscat	
Pakistan	1947	Islamabad	
Papua New Guinea	1975	Port Moresby	
Philippines	1945	Manila	
Qatar	1971	Doha	
Saudi Arabia	1945	Riyadh	
Singapore	1965	Singapore City	
South Korea	1991	Seoul	
Sri Lanka	1955	Colombo	
Syria	1945	Damascus	
Taiwan	—	Taipei	
Thailand	1946	Bangkok	
Turkey	1945	Ankara	
Turkmenistan	1992	Ashkhabad	
UAE	1971	Abu Dhabi	
Vietnam	1977	Hanoi	
Yemen	1947	Sana & Aden	

## Afghanistan

Capital : Kabul, Area : 647,497 sq. km.  
Population : 25.59 m., Language : Pakhto (Pushtu).

## Bahrain

Capital : Manama Area : 578 sq. km.  
Population : 594,000, La.

## AROUND THE WORLD

**Religion :** Islam. **Currency :** Bahraini. **GNP per capita :** (PPPS) 13,970 **Literacy :** 85.2%

The state of Bahrain forms an archipelago of 36 low-lying islands in the Arabian Gulf, between the Qatar peninsula and the mainland of Saudi Arabia. The flat and sandy, with a few low hills, Bahrain has a hot and humid climate. The economy is mainly based on oil. Fruits and vegetables, alfalfa, dates, poultry are the main agricultural products.

Bahrain was controlled by the Portuguese from 1521 to 1602. In 1783 the Khalifa family gained control. However in 1861 Bahrain and Britain signed a treaty of peace and friendship. On Aug 15, 1971 Bahrain became an independent state after 90 years of British dominion. After the 1973 election the relation between the National Assembly and the Khalifa family was not smooth and emir began ruling by decree. In 1994 demand for the restoration of democracy led to the arrest and expulsion of prominent dissidents.

### Bangladesh

**Capital :** Dhaka **Area :** 143,988 sq.km **Population :** 124 million **Language :** Bangla **Religion :** Islam **Currency :** Taka **GNP per capita :** 350 **Estimated GDP :** 41,419 **People infected by AIDS\* :** 1,000 **Doctor per 1000 people\*\* :** 0.2

Bangladesh is bordered by India (W,N and E) Burma (SE) and Bay of Bengal (S). A low-lying "river" region, Bangladesh is composed mainly of the combined delta of the Ganges, Brahmaputra and Meghna rivers. The climate is tropical monsoon. Frequent devastating floods hamper Bangladesh economy very frequently. The economy is predominantly agricultural. Jute, rice, tea are the principal crops. Bangladesh has the highest population density in the world.

The present Bangladesh became part of the Britain in 1867. When Pakistan achieved independence in 1947, Bangladesh was called East Bengal. In 1955, East Pakistan became the eastern province of Pakistan and 1967 it was separated from West Pakistan. The Rahman demanded greater

autonomy and his Awami League won a majority in the federal Pakistani assembly in 1971. The Awami League declared independent of Bangladesh. The civil war followed it. An estimated one million Bengalis were killed before India intervened on behalf of Bangladesh. Pakistan was defeated in Dec. 1972. Sheikh Mujibur Rahman was assassinated in a military coup in 1975. Parliamentary elections followed in Feb. 1979. President Zia's Bangladesh Nationalist Party (BNP) got majority in the Jatiya Sansad. Zia was assassinated on 30 May 1981. On 24 March, 1982 there was a bloodless military coup by which Gen. Ershad became chief martial law administrator. In Jan. 1986 a National Executive Committee was formed and the National Party launched. With the support of government, Gen. Ershad was re-elected President in 1986. In Dec. 1990 Gen. Ershad was deposed and arrested after a popular uprising. In June 1996 election Sheikh Hasina Wazed, daughter of late Mujibur Rahman, of Awami League became the PM.

### Bhutan

**Capital :** Thimpu **Area :** 46,500 sq. km **Population :** 1.9 million **Language :** Dzongkha, Lhotsam (Nepali), English, Assamese, **Religion :** Buddhism, Hinduism, **Currency :** Ngultrum, fixed at par with India Rupee, **Literacy :** 42%

The Kingdom of Bhutan (the land of the thunder dragon) in the Himalayas, bordered by India (S and E), the Tibet region of China (N), and Sikkim (W). The climate ranges from humid subtropical to temperate. Raising of livestock and rice cultivation dominate the economy of the country. Metal, wood and leather working, papermaking and weaving are also important.

The Tibetans conquered Bhutan's native tribes in the 16th century. In 1720 China established suzerainty over the area. Britain annexed part of Bhutan in 1865 and in 1910 Bhutan's first treaty with Britain was signed. After China's forced occupation of Tibet in 1950, Bhutan became a point of

controversy between China and India. Jigme Singhe Wangchuk became king in 1972. In the early 1990s illegal immigrants mostly Nepali-speaking Hindus, were forcibly expelled. In 1998 Druk-Air made 2 weekly flights to New Delhi.

## Brunei

*Capital* : Bandar Seri Bagawan. *Area* : 5,767 sq. km. *Population* : 313,000. *Language* : Malay, English, Chinese, *Literacy* : 88%, *Religion* : Islam *Currency* : Brunei Dollar or (ringgit)

The independent Sultanate of Brunei is surrounded by Sarawak and Malaysia. A British protectorate from 1888, it was granted independent in 1971 and became an independent member of the Commonwealth on 1 Jan 1984. Brunei's economy is mainly depend upon oil and natural gas. It has a tropical climate. Rice is the chief food crop, other crops grown are coconuts, banana, vegetables, rubber. Many students go overseas for higher studies and foreign newspapers are widely available. Brunei's wealth is based on the Seria oilfield, discovered in 1929.

## Cambodia

*Capital* : Phnom-Penh. *Area* : 181,035 sq. km. *Population* : 10.5 million. *Language* : Khmer, French, *Literacy* : 45%, *Religion* : Theravada, Buddhism, *Currency* : Riel, *GNP per capita* : 280, *Doctor per 1000 people* : 0.1, *Estimate GDP* : 3044, *People infected by AIDS* : 320,000.

Kampuchea or Cambodia is bordered by Thailand (N and W), Laos (N), Vietnam (E), and the Gulf of Siam (S). The heart of the country consists of a large central alluvial plain. It has a tropical monsoonal climate, ideal for growing rice, corn, vegetables, tobacco, etc. Cattle rearing and fishing are also important.

After the 15th century Cambodia was declared a French protectorate in 1893. Japan occupied Cambodia in World War II. Cambodia gained full independence in 1953 as the Kingdom of Cambodia. Norodom Sihanouk led the

country until 1970. Cambodia became the Khmer Republic in 1970 and was a major battlefield of the Vietnam War. Sihanouk was restored in 1976 and renamed the country Democratic Kampuchea. Border conflict with Vietnam led to Vietnamese invasion in 1979. Vietnamese forces withdrawn in 1988 following the recognition of UN member state. After the election of a constituent assembly in May 1993, a new constitution was promulgated on 23 Sept., restoring parliamentary monarchy. In July 1997 Hun Sen engineered a coup which led to the ousting of first PM Norodom Ranariddh. Ranariddh returned on 30 March 1998 as guest of a Japanese brokered plan to ensure 'free and fair' elections. Hun Sen's Cambodian People's Party declared victory while the oppositions alleged fraud.

## Myanmar

*Capital* : Rangoon. *Area* : 678,033 sq. km. *Population* : 47.6 m., *Language* : Burmese, Karen, Shan, *Religion* : Buddhism, *Currency* : Kyat, *Literacy* : 83% *People infected by AIDS* : 440,000, *Doctor per 1000 people* : 0.1

The Union of Myanmar (Burma till 1989) bordered by India, Bangladesh and the Bay of Bengal (W), China (N and NE), Laos and Thailand (E), and the Andaman Sea (S). The climate is mostly tropical. About 65% labourforce is employed in agriculture and forestry. Rich mineral resources such as petroleum, tin, copper, zinc and coal are not fully exploited.

The Burmans moved into the area from Tibet before the 9th century AD. The Burmese capital, Pagan, fell to the Mongols in 1287 and the area then was divided among local rulers. The Burmese Toungoo dynasty united the area in 16th century. During three Anglo-Burmese Wars (1824-26, 1852, 1885) Burma fell to British India. Japan occupied Burma during World War II. Burma achieved complete independence in 1948. After 30 years, in 1990, the National League for Democracy won majority in the first free elections. But the army was not in a position to handover



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power. The leading opposition leader Aung San Suu Kyi was kept in house arrest for more than five years and released on July 10, 1995. In August 1998 the National League for Democracy under Aung San Suu Kyi's leadership declared that it would convene a 'people's parliament' of all representatives who were elected in 1990 election.

### China

*Capital* : Beijing, *Area* : 9,561,000 sq km, *Population* : 1255.1 m, *Language* : Chinese (Mandarin) and other local languages, *Literacy* : 82%, *Religion* : Buddhism, Confucianism and Taoism, *Currency* : Renminbi (Yuan), *Estimated GDP* : 901981, *GNP per capita* : 750, *People infected by AIDS* : 400,000, *Doctor per 1000 people* : 1.6

The People's Republic of China is the most populous country in the world. It is bounded by the USSR and North Korea (E), the USSR and the Mongolian People's Republic (N), the USSR and Afghanistan (W) and Pakistan, India, Nepal, Bhutan, Myanmar, Laos and Vietnam (S). China has a 6440 km of coastline. China is the world's third largest country after Soviet Union and Canada. The terrain is generally rugged with broad plains along the rivers. The Tibetan plateau occupies SW China and is separated from the Tarim Basin of Xinjiang to the north of Kunlun Mts. The two main rivers are the Yellow River in the North, and the Changjiang (Yangtze) River in Central China. The climate is generally temperate, harsh in the north and subtropical in the south.

The first documented Chinese civilization was the Shang dynasty. The Qin dynasty united China under a centralised imperial system, construction of Great Wall began during this period (221-206 BC). In the 13th century North China fell to the Mongols led by Genghis Khan. His grandson Kublai Khan founded the Yuan dynasty. Great Britain provoked the Opium War (1839-42) and easily defeated China. The Boxer Uprising (1898-1900), a final desperate effort to resist foreign influence was crushed by an international force in

1927, Kuomintang led by Chiang Kai-shek inaugurated long Chinese civil war. In 1931 Japan had occupied Manchuria and waged a full scale war against China in 1937. An uneasy coalition of Nationalists and Communists fought against Japanese and own in 1945. Again civil war erupted with the US supporting the Nationalist. Major cities including Beijing fell to the Communists in 1949. On 1 October the people's Republic of China was proclaimed with Mao Zedong as chairman and Zhou Enlai as premier. The ideological rift between China and the Soviet Union led to withdrawal of Soviet aid and technical assistance. Fearing a cultural revolution (1966-69), Mao launched a massive upheaval to purge the Communist Party. An easing relation with the West led to the admission of China to the UN in 1971. On Jan 1979 the China and US eased diplomatic relations. Britain and China signed an agreement in 1984 for the return of Hong Kong to China in 1997. Mass student protest against Deng's modernisation policies was severely repressed in Beijing (1989) and recently it joined WTO.

### Cyprus

*Capital* : Nicosia, *Area* : 9251 sq km, *Population* : 776,000, *Language* : Greek, Turkish and English, *Religion* : Christianity and Islam, *Literacy* : 96%, *Currency* : Cyprus Pound

The Republic of Cyprus is an island in the East Mediterranean sea. Two mountain ranges lie across the island from East to West. The highest peak is Mt Olympus (1953 m). Between the ranges lies a wide plain where grapes, cereals, olives, tobacco and cotton are grown. Fishing, tourism and the raising of livestock are important sources of economy.

Cyprus became independent in 1960 and Makarios III was elected president. The British retained two sovereign military enclaves, Akrotiri and Dhekelia. The heavy fighting between the British and Greek Cypriot nationalists forced the UN to send peace keeping force to Cyprus in 1965. In 1974 the Greek army dominated national

guard and overthrew Makarios regime. The Turkey invaded Cyprus and established a 'Turkish Federated State of Cyprus' which in 1983 declared the independent 'Turkish Republic of Northern Cyprus'. Since 1975 Cyprus has been a divided state, with self governing Turkish community in the north and a Greek community in the south. In 1998 a proposal by Rauf Denktas, that the Greek and Turkish communities should join in a federation that recognises the equal and sovereign status of Cyprus Greek and Turkish Parts' was rejected by the Greek and Cypriot governments.

## Hong Kong

*Capital* : Victoria, *Area* : 1071 sq. km. *Population* : 6.3 m, *Language* : English and Cantonese, *Literacy* : 75%, *Religion* : Confucianism and Buddhism, *Currency* : Hong Kong Dollar, *GNP per capita* : 23670

Hong Kong is located on the southeast coast of mainland China and consisting of two large islands, 200 smaller islands and a portion of mainland. Only about one-seventh of the land is arable. Its economic policy is based on free enterprise and free trade, an efficient and aggressive commercial infrastructure with industrious workforce.

British occupied Hong Kong during the Opium War (1839-42). Conquered by Japanese (1941) during World War II, it was reoccupied by the British in 1945. For China, Hong Kong remains a major source of foreign exchange and an important commercial link with the West. On July 1, 1997 Hong Kong became a Special Administrative Region of China when Britain handed over after 155 years of rule.

## India

*Capital* : New Delhi, *Area* : 3,165,596 sq km. (excluding China and Pakistan occupied parts of Jammu & Kashmir), *Language* : Hindi, English and 1600 other Languages, *Literacy* : 52%, *Religion* : Hinduism, Buddhism, Islam, Christianity etc., *Currency* : Indian Rupee, *GDP estimated* :

381566, *GNP per capita* : 430, *People infected by AIDS* : 4100,000, *Doctor per 1000 people* : 0.4

## Indonesia

*Capital* : Jakarta, *Area* : 1,904,569 sq km. *Population* : 203.5 million, *Language* : Bahasa Indonesian, English, Dutch, Japanese etc., *Religion* : Islam, Hinduism, Christianity, Buddhism, *Currency* : Rupiah, *Literacy* : 83.8%, *Estimated GDP* : 214995, *GNP per capita* : 680, *People infected by AIDS* : 52,000, *Doctor per 1000 people* : 0.2

The Republic of Indonesia comprising more than 3000 islands stretching from the Malaysian mainland to New Guinea. The main islands are Java, Sumatra, Bali, Timor etc. The islands are mountainous and dotted with volcanoes. The climate is tropical with heavy rainfall. Agriculture is the backbone of economy. Principal crops are rice, sugarcane, fruit, cassava and maize. Indonesia exports liquefied natural gas, tin, bauxite, nickel etc.

Before 14th century Indonesia came under the influence of Indian civilization. Towards the end of the 16th century Islam had become the dominant religion. European spice traders take the advantage of internal dissension of Indonesia. Following the Japanese occupation of the islands in the World War II, nationalist leader Sukarno proclaimed an independent Indonesian republic. Finally the Dutch transferred sovereignty in 1949. Indonesia annexed Portuguese East Timor in 1976. On 22 Feb. 1957 Sukarno handed over all his powers to Gen. Suharto. Indonesian economy became weak in 1997 when a failure of economic confidence spread from Japan across Asia. By May 1998 prices doubled, then trebled, riots broke out in Jakarta. President Suharto was succeeded by B.J. Habibie. Recently East Timor voted for independence under the guidance of the UN.

## Iran

*Capital* : Teheran, *Area* : 1,646,000 sq km. *Population* : 71.5 million, *Language* : Persian, Turk, Arabic, Kurdish, *Literacy* : 72% *Religion* : Islam,

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Currency : Rial Estimated GDP : 89,979, GNP per capita : 1770, Doctor per 1000 people : 0.3

The Islamic Republic of Iran (Persia until 1935) is surrounded by the Soviet Union and the Caspian Sea (N), Afghanistan and Pakistan (E), the Persian Gulf and the Gulf of Oman (S), and Turkey and Iraq (W). Iran lies on a high plateau surrounded by the Elburz and Zagros mountain ranges. There are great salt deserts in the interior, the climate is one of the hot summers and cold winters. Petroleum contribute 80% of the nation's wealth. However, 75% people supported by agriculture.

Iran's modern history may be said to have started in 644, when the Arabs overthrew the Sassanids and introduced Islam. The discovery of oil in early 1900s intensified European interest. The Anglo Russian agreements of 1907 divided Persia into British and Russian spheres-this continue up to World War I. In 1921 Reza Khan overthrew Kajar dynasty and established Pahlavi dynasty in 1925. During 1950s the power of the Shah was challenged by Premier Muhammad Mossadegh, who nationalised oil industry. Ayatollah Khomeini who was in exile since 1964 returned and established an Islamic republic. After Khomeini's death in 1989, Ali Khamenei elected as Iran's new spiritual leader. Following Iraq's invasion of Kuwait, Iraqi president Saddam Hussain offered peace terms and began the withdrawal of troops from Iran. In 1997 election, conservative faction led by spiritual leader Ayatollah Ali Khamenei defeated liberal minded Mohammad Khatami. Again the conservatives won 63 of the 86 seats in the Assembly of Experts.

### Iraq

Capital : Baghdad, Area : 434,924 sq km Population : 21.2 m, Language : Arabic (official) and Kurdish, Religion : Islam, Currency : Iraq, Literacy : 60% Doctor per 1000 people : 0.6

The Republic of Iraq (old name Mesopotamia) bordered by Persian Gulf, Kuwait and Saudi Arabia (S), Jordan and Syria (W), Turkey

(N) and Iran (E). Iraq is almost a landlocked country, the only outlet to the sea on the Persian Gulf. More than 50% labour force is engaged in agriculture. The Middle East Iraq is among the largest oil producers. In 1972 all its oil resources were nationalised. Important crops cultivated are cotton, cereals and vegetables.

The British invaded Iraq during World War I, and in 1920 it became a League of Nations under British administration. Iraq was made kingdom in 1921 under Faisal I. In 1934 the export of oil began. Following an army coup in 1958, Iraq became a socialist republic under Gen. Abdul Karim Kassem. The relations between Iraq and Iran were strained after Britain's withdrawal in 1971. Over Shatt Al Arab waterway a full-scale war broke out between Iraq and Iran. On 15 Aug 1990 Iraq offered peace terms and began the withdrawal of troops from Iran. Following the attack on Kuwait, relations with US deteriorated, and it further worsened in 1997 when Iraq refused cooperation with UN weapon inspectors. The UN Sec. General Kofi Annan forged an agreement in late Feb. 1998 in Baghdad allowing for "immediate unconditional and unrestricted access" to all suspected weapon sites. Then in Aug. 1998, Saddam Hussein engineered another stand off with the UN arms inspectors demanding that Iraq had rid itself of all weapons of mass destruction. However, UN Chief inspector refused to do. The US and Britain launched 'Desert Fox' to nab Saddam Hussein.

### Israel

Israel : By Israel the Hebrews understood 'shiven with God'. They adopted the name 'Israel' as a national designation. Under Rehobeam the Hebrew kingdom broke into Israel (northern kingdom) and Judah (southern kingdom).

Capital : Jerusalem, Area : 20,700 sq km Population : 5.6 m, Language : Hebrew (official) and Arabic, Literacy : 95%, Religion : Judaism and Islam, Currency : Shekel, Estimated GDP : 95081, GNP per capita : 15940, Doctor per 1000 people : 3.8

The state of Israel bounded by Lebanon (N), Syria and Jordan (E), the Mediterranean Sea and Egypt (W), and the Gulf of Aqaba (S). Israel is comprising of four geographical regions: the Mediterranean coastal plain, mountain area in the north-east and centre, the semiarid Negev in the south, a great rift valley in the extreme east. Citrus fruit is the major export crop. Tourism is also important. About 85% of the population are Jews. Israel is highly urbanised.

Palestine was conquered by the Ottomans in 1518 and remained part of their empire for 400 years. During World War I British conquered Palestine. By 'Balfour Declaration' of 1917, Palestine were given a League of Nations mandate to govern territory between 1918 to 1948. After World War II various British and UN plans aimed at dividing Palestine into an Arab state and a Jewish state. On 14 May 1948, a few hours before the expiry of the British mandate in Palestine, the Jewish National Council proclaimed the state of Israel. The state was open to Jews worldwide on 15 May 1948. Two days later Arab, Egypt and Syria attacked Israel. In 1949 a UN resolution passed to solve exodus of refugee of Palestinian Arabs from Israel. Egyptian troops permitted Israel to occupy Gaza and the Sinai in 1958 by the UN pressure. Tension was growing within Israeli population. The Jewish majority from Asia and Africa demanded posts which were filled by European Jews. Egypt and Syria launched a surprise offensive on the Jewish festival of Yom Kippur on 6 Oct. 1973. The dispute ended with the Camp David agreements (1978) and Washington Peace Treaty (1979) signed between Israel and Egypt. The War with Lebanon wrecked Israeli economy with 400 percent inflation. From 1987 the situation was exacerbated between Israel - Palestine with the Palestinian uprising on the West Bank and in the Gaza Strip. On 4 May 1994 in Cairo Israel PM Yitzhak Rabin and PLO leader Yasser Arafat signed an agreement on the first phase of Palestinian self-rule in Gaza Strip and Jericho. On 4 Nov. 1998 Yitzhak Rabin was assassinated by a

Jewish religious extremist. Israel accepted partial withdrawal on the condition that Palestinians cracked down terrorism - by the terms of Wye Plantation mediated by the US.

## Japan

*Capital*: Tokyo, *Area*: 377,765 sq.km. *Population*: 125.6 million, *Language*: Japanese, *Religion*: Shintoism and Buddhism, *Literacy*: 100%, *Currency*: Yen, *Estimated GDP*: 4,190,233, *GNP per capita*: 32380, *People infected by AIDS*: 6,800 *Doctor per 1000 people*: 1.8

Japan, occupying an archipelago off the coast of East Asia, has four main islands. These are Hokkaido, Honshu, Shikoku and Kyushu. Mountains including a number of volcanoes, cover two thirds of Japan's surface. Rainfall is plenty, typhoons and earthquakes are frequent. Mineral resources are scanty except coal. Rice and other cereals are the main crops. Fishing is highly developed. The world's leading producer of ships, cars, production of steel, electronic equipment and machine tools are from Japan.

The Yamato clan unified Japan by the 8th century. Court culture was first influenced by Chinese learning and then by a rebirth of Japanese culture. The 12th century witnessed development of feudalism, rise of warrior class called *Samurai* and establishment of military rule. In 1854 the US naval officer M.C. Perry forced Japan to open trade with the West. Adopting the techniques of Western civilisation, Japan transformed rapidly into an industrial state and military power. Success of First Sino-Japanese War and the Russo-Japanese war brought Japan international prominence. Japan formed a military alliance with Germany and Italy in the World War II and opened hostilities against the US. Following the dropping of two atomic bombs by US in Hiroshima and Nagasaki, Japan surrendered in Aug. 1945. In 1952 Japan regained her sovereignty. The 87 year old Emperor Hirohito died after 62 years in throne. A world beating economy fell drastically after 1997 causing the government to cut taxes, providing financial



largely mountainous. Five major minerals found are : gold, iron ore, coal, tungsten, and graphite. Only 20% Korean land is arable. Rice, barley, wheat, corn, soya and grain sorghums are extensively cultivated. Korean fishing is the best in world. Major North Korean products include iron, steel, machinery, textiles and chemicals.

Korean history begins in 2nd century B.C. when the Chinese founded a colony at Pyongyang. The Koryo dynasty ruled a united Korea until the invasions of Mongol from China in 13th century. Japanese troops moved into Korea during the first Sino-Japanese War. Formally Japan annexed Korea in 1910 and kept under control until 1945. During World War II, the Allies promised independence of Korea. After the war Korea was divided into two zones: Soviet troops to north and American troops to South. In 1948 two separate regimes were established, the Republic of Korea in South, and the Democratic People's Republic under Communist rule in the North. North Korea has maintained close relations with the USSR and the people's Republic with China. On 13 Dec. 1991 the prime ministers of North Korea and South Korea signed a declaration of non-aggression, agreeing not to interfere in each other's internal affairs. Celebrating its 50th anniversary in 1993, North Korea confirmed king Jong Il as paramount leader and military supreme commander.

## South Korea

*Capital* : Seoul, *Area* : 98,859 sq. km. *Population* : 45.7 m, *Language* : Korean, *Literacy* : 93%, *Religion* : Buddhism, Christianity and Confucianism, *Currency* : Won, *Estimated GDP* : 442643, *GNP per capita* : 7970, *Doctor per 1000 people* : 1.2.

(See first two paragraphs of North Korea). South Korean manufactures include textiles, electrical and electronic equipment, chemicals, ceramic goods, plywood, etc.

**Korean war** : The Korean war is the outcome of conflict between Communist and non-Communist forces in Korea from 25 June 1950 to 27 July 1953. After the end of WWII, Korea was

divided at the 38th parallel into Soviet (North Korea) and US (South Korea). When North Korea invaded South Korea, the UN authorised member states to help South Korea. Fighting centered around the 38th parallel. The cease-fire was achieved on 27 July 1953 by ending Korean war and recognising the 38th parallel between two countries.

## Kuwait

*Capital* : Kuwait City, *Area* : 17,818 sq km., *Population* : 1.7 million, *Language* : Arabic and English, *Literacy* : 80%, *Religion* : Islam, *Currency* : Kuwait Dinar, *Estimated GDP* : 30373, *Doctor per 1000 people* : 0.2.

The state of Kuwait at the top of the Persian Gulf, bounded by Saudi Arabia (S) and Iraq (N and W). Kuwait is a sandy and barren country. It has about one fifth of the world's estimated oil reserves.

Arab tribes in the early 18th century settled Kuwait. It became a British protectorate in 1897 and remained until independence in 1961. Oil production began in the 1940s. Until 1974, British-American firm controlled the oil production in Kuwait. On Aug. 1990 Iraqi forces invaded Kuwait. Following the expiry of the date fixed by the UN for withdrawal of Iraqi forces on 15 Jan 1991, the coalition forces launched an air offensive and then land attack. Iraqi forces were routed. On 10 November 1994 Iraq recognised the independence and boundaries of Kuwait.

## Laos

*Capital* : Vientiane *Area* : 236 600 sq km. *Population* : 5.2 m, *Language* : Lao, Thai, English, French, *Literacy* : 84%, *Religion* : Buddhism and tribal beliefs, *Currency* : Kip, *Estimated GDP* : 1753, *GNP per capita* : 330, *People infected by AIDS* : 1,100, *Doctor per 1000 people* : 0.2.

The Lao People's Democratic Republic is bordered by China (N), Vietnam (E), Cambodia (S) and Thailand and Burma (W). The climate is monsoonal. Economically the country is one of the least developed in Asia. Predominantly rural.

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population is engaged primarily in fishing and subsistence agriculture.

Laos was infiltrated in the 13th century from Yunnan (China) by Lao people. After occupation by Japanese forces in World War II (1949) Laos became a semi-autonomous state within the French Union. It received independence in 1953. A provisional coalition government was duly formed in 1974. However, after the communist victories in Vietnam and Cambodia in 1975, the Patriotic Front Pathet Lao took over the running of the whole country. On 29 Nov. 1975 King Savang Vathana abdicated and People's Congress proclaimed a People's Democratic Republic of Laos on 2 Dec. 1975.

### Lebanon

*Capital*: Beirut, *Area*: 10,400 sq. km. *Population*: 3.1 million, *Language*: Arabic, French and English, *Literacy*: 92%, *Religion*: Christianity and Islam, *Currency*: Pound, *Estimated GDP*: 14962, *GNP per capita*: 3560, *Doctor per 1000 people*: 1.9

The Republic of Lebanon is surrounded by the Mediterranean Sea (W), Syria (N.E) and Israel (S). Much of the terrain is mountainous. Half the labour force is engaged in agriculture. The principal crops are grains, olives and citrus fruits.

The present area of Lebanon came under the Ottoman Turks in 16th century. After the defeat of Turkish in World War I it became a part of French mandate known as Greater Lebanon. It got independence in 1943. From March 1975, Lebanon was beset by civil disorder by which the economy was brought to a virtual standstill. Western forces pulled out after a peace agreement was signed by the leaders of the Druze, Arab and (Christian) Lebanese forces to end the decade long civil war on 28 Dec. 1995. Hizbollah maintained the right to resist foreign occupation of Lebanon and after US-mediated on between Palestinian radical groups and Hizbollah guerrillas.

### Mongolia

*Capital*: Ulan Bator, *Area*: 1,565,000 sq. km., *Population*: 2.6 m., *Language*: Mongolian,

*Literacy*: 83%, *Religion*: Traditionally Lamaistic Buddhism, *Currency*: Tugrik, *Estimated GDP*: 862, *GNP per capita*: 400, *People infected by AIDS*: <100, *Doctor per 1000 people*: 2.7.

Mongolian People's Republic bordered by the USSR (N) and China (S). Mountain ranges and high plateaus cover most of the northwest and the central south, and the Gobi desert lies in the south and east. Livestock raising is the principal occupation.

Mongolia's early history is that of the Mongols. It was under Chinese suzerainty from 1691 to 1911. The state reoccupied by Chinese in 1919, taken by Russians in 1921 and the Mongolian Communists occupied in the same year. In 1924 Mongolia proclaimed independence. However, a Sino-Soviet treaty of 14 Feb. 1950 guaranteed independence. In June 1987 a boundary agreement and in Nov. 1988 a border treaty were signed with China.

### Nepal

*Capital*: Kathmandu, *Area*: 147,181 sq. km., *Population*: 22.6 million, *Language*: Nepali, Maithili, Bhojpuri etc., *Literacy*: 27%, *Religion*: Hinduism, Buddhism, Islam, *Currency*: Nepalese Rupee, *Estimated GDP*: 4929, *GNP per capita*: 210, *People infected by AIDS*: 26,000, *Doctor per 1000 people*: 0.1.

The Kingdom of Nepal is bordered by China (N) and India (W,S,E). Nepal comprises three major areas: forests and cultivable land in the south, towering Himalayas in the north, moderately high mountains in the central region. The economy is predominately agricultural. Rice, maize, wheat, millet, jute, timber, and potatoes are the principal products.

By 4th Century A.D., a Hindu Buddhist culture flourished in Kathmandu valley. British captured Nepal in 1816. The Rana family controlled the country until 1951. Under the Ranas, Nepal was isolated from foreign influence and there was little economic modernisation. Nepal became sovereign in 1923 and constitutional monarchy was established in 1951. After a brief period of democracy a partyless panchayat system was set

up in 1962. In November 1990 the king relinquished his absolute power. A general election held the following years was won by the Nepali Congress Party.

## Oman

*Capital* : Muscat, *Area* : 300,000 sq km.  
*Population* : 2.5 million, *Language* : Arabic, *Literacy* : 41%, *Religion* : Islam, *Currency* : Omani rial, *Estimated GDP* : 12102, *Doctor per 1000 people* : 0.9

The Sultanate of Oman is bounded by the Gulf of Oman (E), the Arabian Sea (S), Southern Yemen and Saudi Arabia (W), and the United Arab Emirates (N). Oman comprises a coastal plain and the interior region is sandy desert. Major production is oil, dates are cultivated in north and sugar cane and cattle in the south-west. After the occupation by Portugal (1508) and Turkey (1659), Oman came under Ahmad ibn Said of Yemen, founder of the present royal line, in 1741. Oman has close ties with Britain since 19th century. In 1980 the US obtained the use of ports and airfields in Oman in exchange for economic and military aid.

## Pakistan

*Capital* : Islamabad, *Area* : 796,095 sq. km.,  
*Population* : 147.8 million, *Language* : Urdu, Punjabi, Sindhi, Baluchi, English, *Literacy* : 38%, *Religion* : Islam, *Currency* : Rupees, *Estimated GDP* : 61667, *GNP per capita* : 480, *People infected by AIDS* : 64,000, *Doctor per 1000 people* : 0.5

The Islamic Republic of Pakistan is bordered by India (E), the Arabian Sea (S), Iran (SW), Afghanistan (W & N) and Jammu and Kashmir (NE). The four main geographic regions of Pakistan are : an arid plateau in the west, alluvial plains in the east, hills and semiarid valleys in the north west, and the high mountain (the Hindu Kush, the Himalayas, the Karakorum) ranges in the north. Agriculture is the backbone of the economy. Main agricultural products are wheat, rice, maize, cotton and sugarcane. The rapidly expanding industries are cement, textile, fertilizer.

The present day Pakistan was the site of

the Indus Valley civilization. In AD 712 Muslim Arabs forcibly controlled most of Sindh and Baluchistan for more than a century. In the 18th and 19th century Northwest India was invaded by the Persians and Afghans before becoming a part of British India. Muslim League (founded in 1905) led by Muhammad Ali Jinnah demanded establishment of separate muslim state in 1940. Finally under the Indian Independence Act, Pakistan consisting of East Bengal (renamed East Pakistan in 1955) and West Pakistan carved out. In 1956 Pakistan formally became a republic. Army coup abrogated constitution and martial law imposed under Gen. Muhammad Ayub Khan. With the help of Indian troops East Pakistan declared independence as Bangladesh in May 1971. Now Pakistan's democratic government is replaced by army coup headed by Gen. Musharrf.

## Papua New Guinea

*Capital* : Port Moresby, *Area* : 462,840 sq km., *Population* : 4.6 million, *Language* : English, Pidgin, *Literacy* : 72%, *Religion* : Christianity and traditional beliefs, *Currency* : Kina, *GDP estimated* : 4,639, *GNP per capita* : 890, *People infected by AIDS* : 4,500, *Doctor per 100 people* : 0.1

Papua New Guinea comprises the eastern half of the island of New Guinea, and a group of islands in the Pacific Ocean to the east of Indonesia. The climate is monsoonal with high temperatures and humidity the year around. The economy is based upon copper and gold mining, timber and plywood, cultivation of cocoa, coffee and copra.

Papua became a British protectorate in 1884 and in 1905 it passed to Australian control. However in 1884 Germany took possession of the northern region. During World War I the area fell to Australia and mandated as the Territory of New Guinea in 1920. Papua and New Guinea were combined in 1949 as the Territory of Papua and New Guinea and became independent in 1975. In 1988 an armed campaign by tribes led to civil war for the secession of the island of Bougainville. A peace agreement signed between



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the government and the secessionist Bougainville Revolutionary Army (BRA). In April 1998 the government signed a 'permanent truce' with the secessionists.

### Philippines

*Capital* : Manila, *Area* : 299,404 sq km. *Population* : 72.7 million, *Language* : Filipino, English and Spanish, *Literacy* : 95%, *Religion* : Christianity and Islam, *Currency* : Peso, *Estimated GDP* : 82,157, *GNP per capita* : 1050, *People infected by AIDS* : 24,000, *Doctor per 1000 people* : 0.1

The Republic of the Philippines, of the mainland of SE Asia, comprising over 7000 tropical islands, 880 of the islands are inhabited. The islands are mountainous and volcanic, earthquakes are common. Agriculture is the mainstay of economy. Rice, corn and coconuts are the principal crops. Manufactures include processed foods, textiles, chemicals and refined metals. Commercial timber is a major export item. Forests cover over half the land area. Philippines coastline is the sixth largest in the world, fisheries are important to the economy.

Europeans first visited the island in 1521 and named after the Philip II of Spain in 1542. Spanish control of the region remained up to 19th century. The Spanish-American war in 1898 ended Spanish rule. Control of the islands was transferred to the US. Japan occupied Philippines in the World War II, the US forces liberated Philippines. In 1946 Philippines gained full independence. Ferdinand E. Marcos elected president in 1965 and 1969. Marcos declared martial law in 1972 to curb increasing civil disorder and in 1973 a new constitution gave Marcos near-dictatorial powers. Marcos forced to flee country in 1986 and Mrs. Aquino continued as president. The insurgent activities carried out since 1972 by the Moro National Liberation Front (MNL) were ended by a peace agreement on 2 Sept. 1996.

### Qatar

*Capital* : Doha, *Area* : 11,437 sq km, *Population* : 579,000, *Language* : Arabic, English,

*Literacy* : 79%, *Religion* : Islam, *Currency* : Riyal (QAR)

The State of Qatar is bordering Saudi Arabia and the United Arab Emirates (U.A.E.). It is on a largely barren peninsula in the Persian Gulf. The climate is hot and dry but humid on the coast. The economy of Qatar is dominated by oil, which accounts for 99% of exports and over 90% of government income. Oil discovered in 1939 and after World War II started exploitation. It is self-sufficient in fruits and vegetables.

Portugal and Bahrain occupied it during 16th and 17th centuries. Political unification came in the 18th century. Qatar was closely tied to Britain until 1971, when it became independent. Since independence Qatar has followed a policy of wide-ranging social and economic reform under Sheikh Khalifa bin Hamad al Thani.

### Saudi Arabia

*Capital* : Riyadh, *Area* : 2,250,070 sq km., *Population* : 20.2 million, *Language* : Arabic, *Literacy* : 63%, *Religion* : Islam, *Currency* : Rial (SAR), *Estimated GDP* : 140,374, *Doctor per 1000 people* : 1.3

The Kingdom of Saudi Arabia bordered by Jordan, Iraq and Kuwait (N), the Persian Gulf, Qatar and the UAE (E), Yemen, Southern Yemen and Oman (S), and the Red Sea (W). The climate is usually hot and dry, humidity along the coasts is high. Oil industry dominates the economy. Increasing attention is being paid to agriculture, water desalination, irrigation and improvements in rural living conditions.

With the birth of Muhammad (AD 570) in Mecca Arabia turned the centre of Islam. But by the end of 7th century the area was disunited. Ibn Saud of Wahhabi Muslim sect is responsible for the existence of Modern Saudi Arabia. In 1932 he proclaimed himself the king of Saudi Arabia. Oil was discovered in 1936 and commercial production began in 1938 with the help of US oil companies. In the early 1980s Saudi Arabia established closer ties with neighbouring states.



## AROUND THE WORLD

deserts, coastal greenery, snowcapped mountains and a warm Mediterranean. Despite a large scale industrialisation programme begun after World War II, Syria is still predominantly agricultural. Major crops are wheat, cotton, vegetables, fruits and tobacco. Oil production in Jezira plays a major role in the economy.

Syria has always been an object of foreign conquest. The Amorites settled Syria in 2100 BC. It fell to Hittites (15th-13th cen. BC), the Assyrians and Babylonians (11th-6th cen. BC) the Persians, the Greeks. Syria was conquered by Muslim Arabs (633-40). During World War II Free French forces granted independence to Syria in 1941. The ruling Bath Arab Socialist Party (Syrian section) came to power in a coup in 1963, maintains a policy of socialism and Arab nationalism. On 12 March 1973, a new constitution, approved by plebiscite, confirmed the Arab socialist Renaissance (Ba'ath) Party as the leading party in the state and society.

### Taiwan

*Capital* : Taipei, *Area* : 36,179 sq. km., *Population* : 21.5 million, *Language* : Mandarin Chinese, *Taiwan*, *Literacy* : 93%, *Religion* : Buddhism, Taoism and Confucianism, *Currency* : New Taiwan Dollar.

Taiwan, officially known as the Republic of China, is in the Pacific Ocean, separated from the mainland of S. China by 161 km. It has a tropical climate with hot humid conditions and heavy rain fall in the summer months and is vulnerable to typhoons. About a quarter of Taiwan's land area is cultivated. Rice, wheat, sugarcane and sweet potatoes are the most important crops. Electronics and textiles provide a major market for the world.

In the 7th century the Chinese first settled and in 1590 Portuguese reached there. Taiwan was held by the Dutch by the 1640s and by China's Ching dynasty in 1683. After the Japan's victory in Sino-Japanese War (1894-95), Taiwan remained in Japanese hands until 1945. In 1971 it lost China's

seat in the UN to the People's Republic of China and in 1979 the US broke relations with Taiwan and established diplomatic ties with Beijing.

### Thailand

*Capital* : Bangkok, *Area* : 513,115 sq. km., *Population* : 59.6 million, *Language* : Thai, English, Malay, Chinese, *Literacy* : 94%, *Religion* : Buddhists, Christians, Hindus, Muslims, *Currency* : Baht, *Estimated GDP* : 153,909, *GNP per capita* : 2,200, *People infected by AIDS* : 780,000, *Doctor per 1000 people* : 0.2

The Kingdom of Thailand (until 1939 the kingdom of Siam) is bordered by Burma (W,NW), Laos (N,E), Cambodia (SE) and Malaysia and the Gulf of Siam (S). The climate is tropical monsoon. Thailand's economy is heavily agricultural. Industry is minor and handicraft production exceeds factory output. Forests cover more than 60% of Thailand. Tourism is an important source of foreign exchange.

The Thais migrated to the area from China in the 13th century. Portuguese traders arrived in the 16th cent. and established Siam's relation with the West. Siam remained an absolute monarchy until a bloodless coup in 1932 forced the king Prajadhipok to grant a constitution. In 1939 the country was renamed Thailand. In the Vietnam War, Thailand strongly supported the US and was a site for US air bases. On 23 Feb. 1991 a military junta seized power, but in May 1992 the legislative assembly voted that future prime minister should be elected by its members rather than appointed by the military. The 1995 election resulted in a coalition government, again election held in 1996. After the 1996 election a new constitution was drafted allowing for the separation of the executive, legislative and judicial branches of the government.

### Turkey.

*Capital* : Ankara, *Area* : 780,570 sq km., *Population* : 9.5 million, *Language* : Turkish, Kurdish,

*Arabic, Literacy : 82%, Religion : Muslim, Estimated GDP : 189,878, GNP per capita : 3,160, Doctor per 1000 people : 1.1*

The Republic of Turkey is bordered by Iraq, Syria and Mediterranean Sea (S), The Aegean Sea (W), Greece and Bulgaria (NW), the Black Sea (N), and the Soviet and Iran (E). Turkey is mostly highland and mountainous with narrow lowland strips along the coasts. The economy is basically agricultural. Since 1940, industrialisation has been emphasised. The main industries are steel, cement, textiles and fertilizers.

The history of Turkey began after World War I. In 1923 boundaries of Turkey were established and formally proclaimed a republic with Kemal as its first president. Towards 1938, Turkey was well on its way to becoming a western-style state. Turkey joined the World War II in Feb. 1945. It became a member of NATO in 1952. In 1982 Turkish voters approved a new constitution. In the face of mounting Islamization of the govt. policy, the supreme National Security Council on Feb. 1997 reaffirmed its commitment to a secular state.

## Turkmenistan

*Capital : Ashkhabad, Area : 488; 100 sq km., Population : 4.3 million, Language : Turkmen, Russian, Religion : Islam, Currency : Manat*

The Turkmen Soviet Socialist Republic borders Afghanistan and Iran (S), the Uzbek and Kazakh republics (E, NE) and the Caspian Sea (W). The Karakum desert occupies 90% of the republic. Agriculture is the main economic activity. The terrain is rich in minerals such as oil, coal, sulphur, salt. Under Russian rule Turkmenistan became a part of the USSR from 1881-1920 and constituent republic in 1925. It adopted independence in Oct. 1991 and became a member of the CIS in Dec. 1991.

## UAE

*Capital : Abu Dhabi, Area : 82,880 sq. km. Population : 2.4 million : Language : Arabic, Literacy : 79%, Religion : Islam, Currency : Dirham,*

*Estimated GDP : 39,107, Doctor per 1000 people : 0.8*

The United Arab Emirates is a federation of seven sheikhdoms, bounded by Persian Gulf (N), the Gulf of Oman (E), Oman (S), Saudi Arabia (S.W) and Qatar (NW). It comprises Abu Dhabi, Ajman, Dubai, Fujairah, Ras-al-Khaimah, Sharjah and Umm al-Qaiwain. The land is largely hot, dry desert. The economy is dominated by oil, first exploited in 1960. There are also rich natural gas deposits.

After World War II Britain granted autonomy to the emirates and in 1971 the independent federation was formed. It established closer ties with the neighbouring states within the framework of the Gulf Cooperation Council.

## Vietnam

*Capital : Hanoi, Area : 329,466 sq km., Population : 77.9 million, Language : Vietnamese, French, English, Chinese, Literacy : 94%, Religion : Taoism, Buddhism, Christianity, Currency : Dong, Estimated GDP : 24,848, GNP per capita 330, People infected by AIDS : 88,000, Doctor per 1000 people : 0.4*

The Socialist Republic of Vietnam bordered by Cambodia and Laos (W), China (N), and the S. China Sea (E,S). The terrain is rugged, the north and south deltas are linked by narrow, mountainous strip. Agriculture is the backbone of economy. The mining of mineral resources such as coal and heavy industry are concerned in the north.

At the Geneva conference in 1954 Vietnam was provisionally divided into Communist North Vietnam and Nationalist South Vietnam. Fearing a Communist victory South Vietnam declared republic in 1955. The Vietnam war ensued with US support to South Vietnam. A ceasefire was signed in 1973 and US troops withdrawn. In 1986, Vietnam implemented economic reforms eliminating subsidies. On 11 July 1995 Vietnam and the USA officially normalised relations. And in the same month Vietnam became an official member of the

ASEAN and signed a trade agreement with the European Union.

## Yemen.

**Capital :** Sana (commercial and winter Capital : Aden), **Area :** 531,000 sq. km., **Population :** 16.9 million, **Language :** Arabic, **Literacy :** 39%, **Religion :** Islam, **Currency :** Rial, **Estimated GDP :** 5,656, **GNP per capita :** 300, **Doctor per 1000 people :** 0.1

North Yemen and South Yemen merged in May 1990 into a United Republic of Yemen bordered by Arabian peninsula (SW), S. Arabia (N, NE), Red Sea (W), the Gulf of Aden (S). The country consists of a narrow coastal plain rises to a highland plateau. In the centre of the country a fertile valley - the best farmland. Agriculture is the mainstay of the economy. Fishing is major activity along the coast. Refining of imported petroleum is the most important industry.

Following an agreement in Dec. 1989 the Yemen Arab Republic (northern) and the People's Democratic Republic (Southern) of Yemen were united as the Republic of Yemen on 22 May 1990.

## Macao

**Capital :** Macao. **Area :** 16.9 sq km. **Population :** 415,850, **Currency :** Pataca, **Religion :** Buddhism, Christianity.

Macao is made up of a peninsula that borders the Chinese province of Guangdong.

Macao was first used as a trading post by the Portuguese in 1521. By 1557, the Portuguese had established a permanent base for their trading and missionary activities in China. In 1849 Portugal proclaimed it a free port. For many years Macao's economy was dominated by gambling. As there is no airport, visitors from Hong Kong spent their time at the casinos. Textiles and fishing are the chief industries. In 1987 Portugal and China made a joint declaration by which Macao is to return to China as of 20 December 1999 under a plan in which it would become a special administrative zone of China, with considerable autonomy. Finally Macao handed over to China applying the "One Country, two systems" formula, as was earlier applied to transfer of Hong Kong.

# AUSTRALIA AND OCEANIA

Australia is the smallest continent in the world comprising of five mainland states and some offshore island states. Including Oceania, total area of Australia and Oceania is 8511000 sq km. Total coastal area of this continent is 19,700 Km. The term Oceania is collectively given for the approximately 25,000 small islands. It is generally considered synonymous with the term, South Seas. Only a few thousands of the small islands are inhabited and many of these are little more than coral atolls. The largest river is Mory Darling. Its length is 3490 Km

Following are given name of the countries, their capital and year of admission to the United Nations Organisation

Name of the countries	Capital	Year of admission to the UNO
1. Australia	Canberra	1945
2. Fiji Islands	Suva	1970
3. Kiribati	Bairiki (Tarawa)	-
4. Nauru	Yaren district	-
5. New Zealand	Wellington	1945
6. Samoa	Apia	1976
7. Solomon Islands	Honiara	1978
8. Tonga	Nuku'alofa	-
9. Tuvalu	Fongafale	-
10. Vanuatu	Vila	1981

## Australia

**Capital :** Canberra, **Area :** 7,68,2,300 sq. km, **Population :** 18.4 m, **Language :** English, **Religion**

Christianity, Islam, Jews, *Literacy*: 99%, *Currency*: Australian Dollar, *Estimated GDP*: 393519, *GNP per capita*: 20300, *People infected by AIDS*: 11,000, *Doctor per 1000 people*: 2.2.

The Commonwealth of Australia is extending from Cape York in the north to Tasmania, and from Cape Byron in the east to Western Australia. Over most of the continent four seasons are mainly recognised, such as Spring, Summer, Autumn and Winter. Much of Australia is hot desert and the coastal plains of the east are most fertile. Australia is the world's largest producer of bauxite and diamonds. Other major minerals include iron ore, manganese ore, uranium, gold. Important agricultural productions are: wheat, sugar cane, rice, grapes, livestock. Forestry and fisheries are also important source of income. Major industrial products are: electric motors, cement, fabric, motor cars, beer, electronic goods etc.

British captain James Cook visited into Botany Bay in 1770 and claimed eastern coast for Great Britain. In 1817 the name 'Australia' was given, this name was suggested by a British naval officer Mathew Flinders in 1801. In 1901 six colonies were federated as states of the commonwealth of Australia, and in 1927 Federal Parliament was transferred from Melbourne to Canberra. Subsequently the British government transferred of Coconas Islands, Christmas Island, Herad, McDonlad Islands to the Australian government. Australia took part in both the World Wars. In March 1986 legislation was enacted giving Australia full legal independence from the Britain, although British monarch remained the sovereign head of the state.

## **Fiji Islands**

*Capital*: Suva, *Area*: 18,333 sq. km., *Population*: 848,000, *Language*: English (O), Hindi, Urdu, *Religion*: Christianity, Hinduism, Islam, *Literacy*: 92%, *Currency*: Fiji Dollar.

The Republic of Fiji Islands comprise 332 islands and islets. The climate is tropical but Oceanic influences prevent undue extremes of heat

or humidity. The agrarian economy of the country is supported by minerals, tourism, forestry, fisheries. Sugar cane, coconuts, pineapples, rice, livestock, vegetables are major agricultural products. It is estimated that gold is likely to overtake sugar as Fiji Islands main export item by 2005. Industrial output include sugar, coconut oil, flour, butter, cement, animal feed, soap, beer

Dutch navigator discovered the Fiji Islands in 1643. First European settlement was established in 1804 and Britain annexed in 1874. On October 10, 1970 Fiji became independent. The second military coup led by Brigadier Rabuka declared Fiji a republic and lapsed the membership of the commonwealth. However, it rejoined the Commonwealth in 1997. Now Indians outnumbered the Fijians. Mahendra Indians an Indian born, became the President of Fiji Islands in 1999 elections

## **Kiribati**

*Capital*: Bariki (Tarawa) *Area* 886 sq km, *Population*: 82,400, *Religion*: Christianity, Bahais, *Literacy*: 90% *Language*: English, Gilbertese, *Currency*: Australian Dollar

The Republic of Kiribati (pronounced Kiribahss) spread over a large expanse of the central Pacific, consisting of 3 groups of coral atolls and one isolated volcanic island. The country has maritime equatorial and tropical climates. Economy is predominantly depend upon agriculture. Fishery and industry are also important. Major agricultural productions are copra, coconut, pandanus, vegetables, livestock. Industry mainly includes fishing and handicrafts.

The Gilberts achieved full independence as Kiribati in 1979, but on 12 July 1979 it proclaimed as the Republic of Kiribati. The president is both head of the state and government, and is directly elected by the people. Teburoro Tito re-elected president in 1998 elections

## **Narur**

*Capital* Yaren district, *Area*: 21.3 sq. km, *Population*: 11,000 *Language*: English, Nauruan,

**Religion:** Christianity, **Literacy:** 99%, **Currency:** Australian dollar.

The Republic of Nauru is a coral island surrounded by reef, in the Pacific Ocean near the equator. It has a tropical climate, tempered by sea breezes. The economy is entirely depend on phosphate mining. Fisheries and agriculture support to the economic base of the country.

Nauru was discovered by the British in 1798 and renamed 'Pleasant Island'. Germany annexed it in 1888 and reverted to original name Nauru. During World War I Australia occupied it and granted independence in 1968 as a special member of the Commonwealth. No political parties exist in Nauru. Bernard Dowiyogo re-elected president of the fourth time in June 1998.

### New Zealand

**Capital:** Wellington, **Area:** 268,676 sq. km, **Population:** 3.7m, **Language :** English (O), **Religion:** Christianity, **Literacy:** 100%, **Estimated GDP:** 64572, **GNP per capita:** 147.00, **People infected by AIDS:** 1300, **Doctor per 1000 people:** 2.1

New Zealand lies in the South Pacific Ocean, 1600 Km, south-east of Australia. There are two principal islands, the North and South Islands; besides Stewart Island, Chatham Islands and small outlying islands, as well as the territories overseas. Country's economy is supported by forestry, fisheries, agriculture and industry. Agricultural production include, wheat, maize, oats, barley, livestock. Major industrial productions are pulp and papers, iron, aluminum, textiles.

In 1642 the first European Abel Tasman was visited the Islands, which were named after the Dutch province of Zeeland. Then British Cap. James Cook visited during 1769 and 1777. In 1840 the Maori inhabitants signed the Treaty of Waitangi with British which recognised British sovereignty over the island. New Zealand become full independence in 1947 within the Commonwealth. For the first time in the world, New Zealand granted woman suffrage in 1893. Sir Michael Hardie Boys sworn in March 1995 as

the Governor-General.

### Somoa

**Capital:** Apia, **Area:** 2934 sq. km., **Population:** 174,000. **Language :** Samoan, English, **Religion:** Christianity, **Literacy:** 100%, **Currency:** Tala

The Independent State of Samoa, formerly Western Samoa, comprising nine islands in the South-West Pacific Ocean. It has a tropical climate and the main islands are crossed by extinct volcanic ranges. Economy is supported by subsistence farming, fishing and tourism. The main agricultural products are coconuts, taro, copra, bananas, papayas, livestock.

Samoa achieved independence as Western Samoa in 1962, becoming a member of the Commonwealth. In July 1997 the country renamed as the Independent State of Soma. Presently HH Malietoa Tanumafili II is the Head of State.

### Solomon Islands

**Capital:** Honiara, **Area:** 29,785 sq. km, **Population:** 426,900. **Language :** English, **Literacy:** 54%, **Religion:** Christianity, **Currency:** Solomon Island Dollar.

The Solomon Islands is in the Pacific Ocean East of New Guinea. The Solomons are sparsely populated and largely covered with rain forest. It has an equatorial climate with only little seasonal variations. Subsistence farming are mainstays of the economy. Exported items are timber, fish, copra, cocoa, and palm oil. Forestry, fisheries and minerals (gold, nickel) are supporting factors of the economic base of the country.

The islands were colonized by Europeans in 1568. British made it a protectorate in 1893. They became independent in 1978 as a member of the Commonwealth. The national elections held on 6 Aug 1997 resulted in a coalition government headed by Bartholomew Ulufa'alu.

### Tonga

**Capital:** Nuku'alola, **Area:** 748 sq. km, **Population:** 97,000. **Language :** English, Tongan

*Literacy:* 93%, *Religion:* Christianity, *Currency:* Pa'anga.

The Kingdom of Tonga is in the South Pacific Ocean, consists of some 169 islands of which three main groups are: Tongatapu, Haapi, and Lavau. Generally it has a tropical climate. Economy of the country predominantly depend upon farming. Copra and bananas are the chief export items. The islands were discovered between 1616 and 1643. British Capt. James Cook named Friendly Islands. In 1900, Tonga became British protectorate and a fully independent state in 1970 as a member of the Commonwealth. The present constitution of Tonga is quite identical with that granted in 1875 by King George Tupou I.

## Tuvalu

*Capital:* Fongafale. *Area:* 24 sq. km., *Population:* 11,000. *Language:* Tuvaluan, English, *Literacy:* 96%, *Religion:* Christianity, *Currency:* Australian Dollar.

Tuvalu is composed of nine low coral atolls scattered over the West Pacific Ocean. Subsistence farming and fishing are the mainstays of the economy. Agricultural productions include

coconut palms, fruit and vegetables, livestock.

Capt. John Byron discovered the islands in 1764 and became a British protectorate during 1892-1916. Full independence was achieved in 1978 as a special member of Commonwealth. Currently HE Dr. Tomasi Puapua is the Governor-General of Tuvalu.

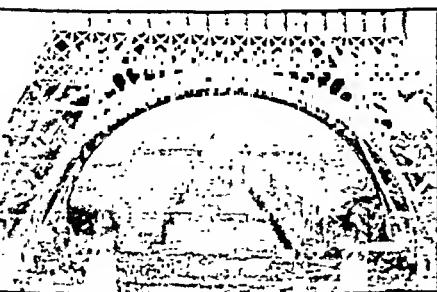
## Vanuatu

*Capital:* Vila, *Area:* 14760 sq. km., *Population:* 192,000. *Language:* Pidgin, English, French, *Religion:* Christianity, Animism, *Literacy:* 53%, *Currency:* Vatu.

The Republic of Vanuatu, formerly called the New Hebrides, comprises of 80 islands, in the South Pacific Ocean East of Australia. It has a tropical climate. Manganese, copra, beef, and frozen fish are produced for export. Main commercial crops are copra, coconuts, cocoa and coffee.

In 1980 the islands became independent as Vanuatu, as a member of the Commonwealth. The legislative power vests with a 50-member unicameral Parliament elected for 4-year term. John Bani elected president on 24 March 1999. ■

# EUROPE



Europe is the sixth largest continent with an area of 10,360,000 Sq. Km, including adjacent islands. It is separated from Asia by the Urals and Ural River (E), the Caspian sea and Caucasus

(SE), and the Black Sea, Bosphorus and the Sea of Marmara (S). The young Alpine mountain chain traverses the continent from W to E. The highest points are Mont Blanc (4807 m) in the Alps and Mt Elbrus (5633 m) in the Caucasus. From the Atlantic coast of France to the Urals, stretches the fertile European plain. The climate is mild and generally humid in the W and NW, Mediterranean type in the S and cool humid with cool summers in the East. Europe is densely populated.

Some of the important European Associations, communities, Unions and Commissions are given below

- (i) European Union (EU): The Union is founded on the existing European Communities.



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- European Communities is the collective name given to the consolidation of (i) European Coal and Steel Community (1952), (ii) European Economic Community (1958), and (iii) the European Atomic Energy Community or Euratom (1958).
- (ii) European Investment Bank (EIB) created in 1958 under the Treaty of Rome.
- (iii) European Monetary Institute established by the Maastricht Treaty on 1 Jan. 1994.
- (iv) European Environment Agency created in 1993.
- (v) Europol established in 1994.
- (vi) Statistical Office of the European Communities or EUROSTAT.
- (vii) Council of Europe established in 1948.
- (viii) Western European Union (WEU) established in 1948 under the Brussels Treaty.
- (ix) Organisation for Security and Co-operation in Europe (OSCE), is a pan-European security organisation.
- (x) European Bank for Reconstruction and Development (EBRD) was inaugurated on 15 April 1991.
- (xi) European Free Trade Association (EFTA) established on 3 May 1960 under the Stockholm Convention.
- (xii) Central European Initiative (CEI) established in Nov. 1989
- (xiii) Council of Baltic Sea States established in 1992 in Copenhagen.
- (xiv) European Broadcasting Union (EBU).
- (xv) European Free Trade Association (EFTA) established in 1960, is a customs Union and trading block.

Following are given the countries of the European continent, their capital and year of admission to the United Nations Organisation.

Countries	Capital	Year of admission to the UNO
Albania	Tirana	1955
Andorra	Andorra-la-Vella	1993
Austria	Vienna	1955
Belgium	Brussels	1945
United Kingdom	London	1945

Bulgaria	Sofia	1955
Czech Republic	Prague	1993
Denmark	Copenhagen	1945
Germany	Berlin	1973
Finland	Helsinki	1955
France	Paris	1945
Greece	Athens	1945
Hungary	Budapest	1955
Iceland	Reykjavik	1946
Ireland	Dublin	1955
Italy	Rome	1955
Liechtenstein	Vaduz	1990
Luxembourg	Luxembourg	1945
Malta	Valletta	1961
Monaco	Monaco	1993
Netherlands	Amsterdam	1945
Norway	Oslo	1945
Poland	Warsaw	1945
Portugal	Lisbon	1955
Romania	Bucharest	1955
San Marino	San Marino	1992
Spain	Madrid	1955
Sweden	Stockholm	1946
Switzerland	Berne	1968
Russian Federation	Moscow	1945
Vatican City	Vatican City	x
Yugoslavia	Belgrade	1945
Azerbaijan	Baku	1992
Belarus	Minsk	1945
Armenia	Yerevan	1992
Estonia	Tallinn	1991
Georgia	Tbilisi	1992
Latvia	Riga	1991
Lithuania	Vilnius	1991
Moldova	Chisinau	1992
Ukraine	Kiev	1945
Kazakhstan	Astana	1992
Kyrgyzstan	Bishkek	1992
Turkmenistan	Ashgabat	1992
Tajikistan	Dushanbe	1992
Uzbekistan	Toshkent	1992

## Albania

Capital: Tirana, Area: 28,748 Sq. Km., Population: 3.4 m, Language: Albanian, Literacy: 100%, Religion: Islam, Christianity, Currency: Lek. Estimated GDP: 2460, GNP per capita: 810, People infected by AIDS: <100, Doctor per 1000 people: 1.4.

The People's Socialist Republic of Albania is bordered by Yugoslavia (N and E) and Greece (S). Except for the fertile Adriatic coast, Albania is mountainous. It has a Mediterranean type climate, with rainfall mainly in winter, but thunder storms are frequent and severe heat in plains in summer. Albania is rich in mineral resources, such as chromium, coal, copper, oil. Mining is the largest source of economy. One-tenth of the land is cultivated, livestock are also important. Leading industries include food processing, textiles, petroleum products, footwear, and building materials. Industry, agriculture and mining are nationalised.

In ancient times Albania was settled by Illyrians and Thracians. The Greeks colonised the Albanian coast and later on the entire region came under Roman and Byzantine rule. By 1478 the Ottoman Empire conquered the region. All short of nationalistic upsurge were suppressed. During the Balkan War, 1912, Albania proclaimed independence. After World War I, the country came under the rule of Ahmed Zogu. Antifascist guerrilla leader Enver Hoxha, a communist, proclaimed a republic in 1946. Opposing to decentralisation, Albania broke with the USSR in 1961. But in 1976 a new constitution proclaimed Albania a republic. In the meantime opposition demanded for new elections. In April 1999 the NATO air attacks on Yugoslavian military targets set off a flood of refugees into Albania.

## Andorra

*Capital:* Andorra-la-Vella, *Area:* 464 sq. km., *Population:* 62,500. *Language:* Catalan, Spanish, *Literacy:* 99%, *Religion:* Christianity, *Currency:* French Franc and Spanish peseta.

The Principality of Andorra is situated in the eastern Pyrenees on the French-Spanish border. The country is mountainous. Sheep raising, minerals (iron, lead and marble), timber and a growing tourist are principal sources of income.

In 1278 Andorra was put nominally under the joint suzerainty of a French count, whose rights have subsequently passed to the President of

France and the Bishop of Urgel. A democratic constitution was adopted in 1933. The joint heads of state are the President of the French Republic and the Bishops of Urgel, the co-princes. The government is carried on by a council of 28 elected members.

## Austria

*Capital:* Vienna, *Area:* 83,858 sq. Km, *Population:* 8.2 m. *Language:* German, *Literacy:* 99%, *Region:* Christianity, *Currency:* Schilling, *Estimated GDP:* 205,232, *GDP per capita:* 26650, *People infected by AIDS:* 7500, *Doctor per 1000 people:* 3.5

The Republic of Austria bordered by Yugoslavia and Italy (S), Switzerland and Liechtenstein (W), West Germany and Czechoslovakia (N), and Hungary (E). The Alps traverse Austria from W to E. The climate is temperate and from west to east in transition from marine to more continental. Forestry, cattle raising and dairy predominates in Alpine and in the rest of the country agriculture predominates. Tourism is very important. Manufacturing and mining employ half of the working force.

Austria served under the Hapsburg empire from 1282 to 1918. Following a collapse of the Austro-Hungarian Monarchy at the end of the World War I, German Austria was proclaimed a republic in 1918. The Treaty of Saint-Germain (1919) reduced its boundary and deprived of its raw material, food and markets. Political unrest, unemployment and social tension began to grow. German troops occupied it in 1938. Austria was restored as a republic in 1945 when US and Soviet troops captured it. Allied powers captured it until 1955 when a peace treaty declared it a sovereign and neutral power. It became a member of the European Union on 1 January 1995.

## Belgium

*Capital:* Brussels, *Area:* 30,528 sq. km., *Population:* 10.2 m., *Language:* Dutch, French, German, *Literacy:* 99%, *Religion:* Christianity, *Currency:* Belgium Franc, *Estimated GDP:* 242,523

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*GNP per capita: 25380, People infected by AIDS: 7500, Doctor per 1000 people: 3.8.*

The Kingdom of Belgium is bordered by the Netherlands and the North Sea (N), West Germany and Luxembourg (E), and France (W and SW). Belgium is crossed by the Meuse and Scheldt rivers and a network of canals. It has a cool temperate climate influenced by the sea, giving mild winters and cool summers. It is one of the highly industrialised countries of Europe. Though emphasis is on heavy industry (steel, chemicals, petroleum), the traditional industries of ice making and diamond cutting continue to flourish. Belgium's economy is dependent upon export and it is a leader in shipping industry. Tourism and agriculture are also important.

In the 15th century Belgium passed to the dukes of Burgundy, France annexed it in 1797 and the region was given to the Netherlands by the Treaty of Paris (1815). An independent 'perpetually neutral' state was established in 1838. Its neutrality was violated by the Germans in World War I and World War II. Following the constitutional reforms after linguistic problems, Belgium became a federal state in May 1993. Recent events of corruption have tarnished the image of Central government. In Jan. 1999 Willy Claes, former NATO Secretary General, was found guilty of corruption and given a 3-year prison sentence.

### Bulgaria

*Capital: Sofia, Area: 110,912 sq. km, Population: 8.4 m, Language: Bulgarian, Turkish, Literacy: 98%, Religion: Christianity, Islam, Currency: Lev, Estimated GDP: 10,085, GNP per capita: 1230, Doctor per 1000 people: 3.4.*

The People's Republic of Bulgaria is bordered by the Black Sea (E), Romania (N), Yugoslavia (W), Greece (S), and European Turkey (SE). The principal river is the Danube. The climate is Mediterranean. Rapid industrialisation began after World War II. Agriculture is the chief occupation. Chief agriculture products are: wheat, maize, barley, grapes, livestock and sugar beets.

Leading industries are food-processing, engineering, Metallurgy etc.

The first Bulgarian empire was established in 681 and replaced by the Byzantines in 1018. However, the Ottoman Empire captured it in 1396. Russia established a 'big Bulgaria' in 1878 under the Treaty of San Stefano. In 1908 Bulgaria declared itself independent. The territorial dispute with Turkey compelled Bulgaria to join the World War I on the German side. Social unrest and economic turmoil continued after war. After a long tussle monarchy was abolished and a people's republic was proclaimed in Sept 1946. In May 1971 a new constitution led to Zhivkov's election as the first president. He was re-elected in 1976, 1981, 1986. A Communist government came to power in Feb 1990 under Andrei Lukanov.

### Czech Republic

*Capital: Prague, Area: 78,864 sq. km, Population: 10.2 m, Language: Czech, Religion: Christianity, Literacy: 100%, Currency: Koruna, Estimated GDP: 52035, GNP per capita: 5040, People infected by AIDS: 2,000, Doctor per 1000 people: 3.*

The Czech Republic is bounded by Germany (W), Poland (N), Slovakia (E), and Austria (S). It has a humid continental climate with warm summers and cold winters. Agriculture is the main supporting factor for the growth of the country. Major agricultural products include wheat, potatoes, barley, sugar beet, maize and rye. Mineral resources (coal, coalin, uranium) and industry (pig iron, crude steel, cement, paper, sugar, beer, cars) also play a major role to strengthen the economic base.

In the 8th Century the Czech tribe rose to dominance. Dynastic rule upto 1848 marked a lot of progress and also revolutionary outlook among the Czech nationals. Czech nationals were swayed by the idea to form a Czechoslovakia, an idea mooted by Thomas Masaryk. In 1906 manhood suffrage were granted. The first World War brought a complete division between Czechs and the Germans. Meanwhile a Czechoslovakia National

Council was set up, and the chairman secured the support of US president Woodrow Wilson for the unity of Czech and Slovakia. Czechoslovakia developed into a prosperous democracy, but the economic depression of the 1930s, nationalist outlook grew among German sparet headed by Hitler. In March 1939 Slovakia declared itself independent under German hegemony. After a prolonged tussle, on 25 Nov 1992 the Federal Assembly voted for dissolution of the Czech and Slovak Federal Republic. This came into effect at midnight on 31 Dec. 1992. Military material and other properties were divided in the proportion of 3 (Czech Rep.) to 1 (Slovakia).

## Denmark

*Capital:* Copenhagen, *Area:* 43,074 sq. km., *Population:* 5.3 m, *Language:* Danish, *Literacy:* 99%, *Religion:* Christianity, *Currency:* Krone, *Estimated GDP:* 170037, *GNP per capita:* 33260, *People infected by AIDS:* 3100, *Doctor per 1000 people:* 2.9.

The kingdom of Denmark is bordered by West Germany (S), the North Sea (W), the Skagerrak (N), and the Kattegat (E). The climate is much modified by marine influences and the effect of the Gulf stream, to give winters that may be cold or cloudy. Denmark is almost entirely low-lying. It has traditionally been an agricultural country and after 1945 it profusely headed towards industrialisation. The main commodities raised are livestock and poultry, root crops and cereals. Fishing and shipping are also important to support the economic base of the country. Leading manufacturing units are ships building, chemical products, meat and dairy products.

It is little known about Danish history before 9th and 11th century AD. Harold Bluetooth was the first Christian King of Denmark. Denmark's union with Norway ended in 1814. Under the Treaty of Kiel (1814) Denmark lost Norway to Sweden. During World war II German forces occupied Denmark. At last in 1949 Denmark breached its long tradition of neutrality and joined

NATO, and in 1973 it joined European Community. The post war dominance of Democratic Party challenged by the Conservatives, Venstre Liberals, Centre Democrats, and Christian People's Party in 1982, 1984, 1987 and 1988.

## Germany

*Capital:* Berlin, *Area:* 357,022 sq Km, *Population:* 82.4 m, *Language:* German, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Deutsche Mark, *Estimated GDP:* 2,092,320, *GNP per capita:* 25850, *People infected by AIDS:* 35,000, *Doctor per 1000 people:* 3.4.

The Federal Republic of Germany is bounded by Denmark and the North and Baltic Sea (N), Poland (E), the Czech Republic (E and SE), Austria (SE and S), Switzerland (S), and France, Luxembourg, Belgium and the Netherlands (W). Oceanic influences of climate are only found in the north-west where winters are quite mild but stormy. To the east and south, winter is lower with bright frosty weather and considerable snowfall. Germany's powerful economy lost its vitality, its currency has depreciated and exports reduced. Agriculture and industry are major supporting factor for economy. Main agricultural crops are potatoes, grains and sugar beets. Industry include steel, ships, vehicles, machinery, electronic products, coal and chemicals. Forestry, fisheries and mineral resources (coal, iron, copper ores and potash) are added factor to the supporting base of the country's economy.

The fragmented Holy Roman Empire was destroyed by Napoleon and combined 16 German states under the banner of the Confederation of the Rhine. Following the Napoleon's defeat in 1815, a greater Confederation of 33 members was formed. The drawn up constitution of 1845 was not accepted by Austria, one of the dominating power of the Confederation. In 1856 Prussia defeated Austria and formed the North German Confederation. After the defeat of France in 1870 by Prussia, a German Empire was created in 1871 except Austria. The imperial government led

## AROUND THE WORLD

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### Finland

*Capital:* Helsinki. *Area:* 304 529 sq. km. *Population:* 5.2 m. *Language:* Finnish, Swedish. *Literacy:* 100%. *Religion:* Christianity. *Currency:* Finnish Markka. *Estimated GDP:* 119834. *GNP per capita:* 24110. *People infected by AIDS:* 500. *Doctor per 1000 people:* 2.8

The Republic of Finland is bordered by the Gulf of Bothnia and Sweden (W), Norway (N), the Baltic Sea (E), and the Gulf of Finland and the Baltic Sea (S). The three main geographical zones are (a) low lying coastal strip, (b) a vast forested interior plateau and (c) a barren region constitute Finland. After World War II manufacturing units replaced agriculture as the principal sector of the economy. Major manufacturing units are processed foods, Metal and engineering products, machinery and chemicals.

During the Napoleonic Wars Russia annexed Finland (in 1809). After the Russian revolution Finland declared itself independent. A peace treaty with Russia was signed in 1920. Again Soviet troops invaded Finland on 30 Nov. 1939. When German attacked Russia in 1941, Finland took the side of German. An armistice was signed in Moscow and Finland agreed to cede Petsamo area to the USSR. To pacify the USSR, Finland

followed a policy neutralism favourable to Russia which is otherwise known as Finlandization. After the Collapse of the USSR, Finland adopted an independent foreign policy.

### France

*Capital:* Paris. *Area:* 549,090 sq. km. *Population:* 58.5 m. *Language:* French. *Literacy:* 99%. *Religion:* Christianity. *Currency:* Franc. *Estimated GDP:* 1,392,501. *GNP per capita:* 24940. *People infected by AIDS:* 110,000. *Doctor per 1000 people:* 2.8

The French Republic is bordered by the English Channel (N), the Atlantic Ocean and Bay of Biscay (W), Spain (SW), the Mediterranean Sea (S), Switzerland and Italy (E and SE), and Germany, Luxembourg and Belgium (NE). It has a mixture of Moderate maritime, Mediterranean and continental climate. Agriculture is important. Agriculture output derives from livestock, sugar beet, wheat, corn, potatoes, and barley. Major industrial products include metals, chemicals, natural gas, foods, motor vehicles, aircraft, textiles and more. Tourism, forestry and fisheries are also important.

The bourgeoisie dominated the emergence of a unified, bureaucratic modern France. February Revolution of 1848 overthrown Louis Philippe. Louis Napoleon headed the second Republic and defeated in the Franco-Russia War (1870-71) which led to the establishment of the Third Republic. In 1944 the Allies power expelled the Germans from France. The Fourth Republic proclaimed in 1946. De Gaullee returned to power as the first president (1958-69) of the Fifth Republic. He laid emphasis on independence of France in military affairs from the US and NATO. In 1969 Francois Mitterrand, a socialist candidate, was elected president. But Mitterrand's period was clouded by charges of corruption. In 1995 Chirac was elected president.

### Greece

*Capital:* Athens. *Area:* 131945 sq. km. *Population:* 10.6 m. *Language:* Greek. *Literacy:* 95%

*Religion:* Christianity, *Currency:* Drachma, *Estimated GDP:* 122946, *GNP per capita:* 11650, *People infected by AIDS:* 7500, *Doctor per 1000 people:* 3.9.

The Hellenic Republic is bordered by the Ionian Sea (W), the Mediterranean Sea (S), the Aegean sea (E), Turkey and Bulgaria (NE), Yugoslavia (N), and Albania (NW). About 75% of the country is mountainous and central Greece includes the low-lying plains, the southern portion of the country is the Peloponnese. Coastal regions and islands have typical Mediterranean conditions and northern mountain areas affect by the continental conditions. Industry has replaced agriculture as the leading source of income. Principal manufacturers include construction materials, textiles, food products, wheat, fruits, olives, grapes, tobacco, sugar beets etc.

Greece was absorbed into the Ottoman Empire in 1456. Greece gained independence from the Ottoman Empire between 1821-29 and declared a Kingdom under the protection of Great Britain, France and Russia in 1830. The 1844 constitution was replaced in 1864 based on popular sovereignty. An exchange of Christian and Moslem populations followed after the 1920 Treaty of Sèvres. After a long battle, heavy inflation and political turmoil, the long hereditary monarchy was abolished by a referendum on 8 Dec 1974. Socialist leader Andreas Papandreu brought some economic reforms but widespread corruption led to his fall. His successor Constantinos Karamanlis took a more pro-European stance emphasising more economic reforms.

## Hungary

*Capital:* Budapest. *Area:* 93,030 sq km. *Population:* 9.9 m, *Language:* Magyar, *Literacy:* 99%, *Religion:* Christianity, *Currency:* Forint, *Estimated GDP:* 45725, *GNP per capita:* 4510, *People infected by AIDS:* 2,000, *Doctor per 100 people:* 3.4

The Hungarian Republic is bordered by Slovakia (N), Ukraine (NE), Romania (E), Croatia and Yugoslavia (S), and Austria (W). It has a

humid continental climate with warm summers and cold winters. Since World War II Hungary has become heavily industrialised replacing the traditional agriculture. Main industrial products are textiles, machinery, metal goods, chemicals and motor vehicles. Major farm products are maize, wheat, rice, potatoes, turnips, grapes, fruits, livestock, and poultry.

Towards 1711, all Hungary had fallen under Habsburg control. In 1867 the Austro-Hungarian Monarchy was established in which Austria and Hungary were equal partners. Hungary proclaimed an independent republic in 1918 and by the Treaty of Trianon (1920) area and population of Hungary were drastically reduced. In World War II Hungary joined (1941) the Axis. A people's republic was established in 1949. Hungary was a founder member of both the Council for Mutual Economic Assistance and the Warsaw Treaty Organisation. With the Soviet support, the government of Janos Kadar brought liberalisation in economic, political and cultural life.

## Iceland

*Capital:* Reykjavik, *Area:* 103,000 sq km, *Population:* 272,069. *Language:* Icelandic, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Krona.

The Republic of Iceland is an island in the Western state of Europe, occupying an island in the Atlantic Ocean. The climate is cool temperate oceanic and rather changeable, but mild for its latitude because of the Gulf Stream and S.W. winds. There are about 200 volcanoes, most often still active. Only about one-quarter is habitable. Agriculture is limited (hay, potatoes, turnips), but sheep, horses and cattle are grazed extensively. Most of the country's needs are supported by imports.

Under the 'Old Treaty' of 1262 the country recognised the rule of the King of Norway. Along with Norway, it came under the Danish Wings in 1380. After December 1, 1918 Iceland acknowledged as a sovereign state, but on 17 June 1944 Iceland proclaimed an independent republic. In

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1980 Vigdis Finnbogadóttir elected first female president of the country.

## **Ireland**

*Capital:* Dublin, *Area:* 84,429 sq. km, *Population:* 3.6 m, *Language:* Irish, English, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Irish Pound, *Estimated GDP:* 75,030, *GNP per capita:* 18340, *People infected by AIDS:* 1700, *Doctor per 1000 people:* 2.1.

The Republic of Ireland lies west of the island of Great Britain, from which it is separated by the North Channel, the Irish Sea, and St. George's Channel. Physically it is composed of a large, fertile, central plain roughly enclosed by a highland rim. The climate is predominately influenced by the Gulf Stream. Ireland's economy is mainly depend upon agriculture. Main agricultural productions are potatoes, grains, sugar beets, vegetables, fruits. Industrial production include textiles, metals, chemicals etc. forestry, fisheries and tourism give a supporting base to the economy of the country.

From the 12th century the English dominated Ireland. Henry VII was recognised as the King of Ireland. Irish rebellions flared up repeatedly under Henry VIII, Elizabeth I. and Oliver Cromwell. The Act of union (1800) United England and Ireland, the Irish parliament was abolished and Ireland was represented in the British parliament. Agitation by the Irish leader Daniel O'Connell resulted in Catholic Emancipation Act in 1829. The military SINN FEIN founded in 1905 among Irish Catholics, emerged as the dominant nationalist group by proclaiming an Irish republic (1918). The Republic of Ireland Act 1948 came into operation on 18 April 1949. The Irish Republican Army (IRA) re-emerged as a fighting force in 1950s and started bombing in Northern Ireland. On Feb 22 1995 the Irish and British Prime Ministers (John Bruton and John Major) announced joint proposals for a settlement in Northern Ireland. In the referendum on 22 May 1998 the Good Friday peace agreement was accepted.

## **Italy**

*Capital:* Rome, *Area:* 301225 sq km, *Population:* 57.2 m, *Language:* Italian, *Literacy:* 97%, *Religion:* Christianity, *Currency:* Lira, *Estimated GDP:* 11,145,560, *GNP per capita:* 20250, *People infected by AIDS:* 90,000, *Doctor per 1000 people:* 1.7.

The Italian Republic is bordered by France (NW), the Ligurian and Tyrrhenian seas (W), the Ionian Sea (S), the Arabic Sea (E), Yugoslavia (NE), and Austria and Switzerland (N). About 75% of the country is mountainous and 20% is forested. The climate varies considerably with latitude. After World War II, industrialisation grew rapidly and replaced agriculture. Chief manufacture include iron and steel, refined petroleum, chemicals, textiles, motor vehicles. Principal farm products are: wheat, maize, sugar beets, rice, tomatoes, citrus fruits, olives and livestock. Wine production and tourism are important source of foreign exchange. Mineral resources are limited.

The Union of Italy and Germany marked the beginning of the Holy Roman Empire. North and central Italy saw the rise of separate city-states. During the late 15th century Italy became the battleground of French, Spanish and Austrian imperialism. By the 18th century Italy subject to foreign rule. Though Italy was a member of the Triple Alliance, Italy entered (1915) World War I on the Allied side. After the war social unrest encouraged the growth of fascism and in 1922 Mussolini seized power. Mussolini created a totalitarian co-operative state and entered World War II as an ally of Germany. Italy surrendered to the Allies in 1943 and became a republic in 1946. No pro-war government in Italy was able to reform an ailing economy and long lasting corruption. From 1947 to 1990 Italy had no less than 57 governments. In 1992 several heavy weight political leaders were accused of links to organised crime and some went to prison.

## **Liechtenstein**

*Capital:* Vaduz, *Area:* 160 sq. km, *Population:* 33,000, *Language:* German, *Literacy:* 100%.

**Religion:** Christianity, **Currency:** Swiss Franc.

The Principality of Liechtenstein is bounded by Austria (E) and Switzerland (W). In summer the peaks can often be foggy while the Valleys remain sunny and warm, but in winter the valleys can often be foggy and cold whilst the peaks remain sunny. Liechtenstein produces machinery and other metal goods, ceramics and textiles. Most of the firms are owned and operated by Swiss. Tourism, sale of postage, bank secrecy are important sources of income.

Liechtenstein became independent in 1866. It is closely linked with Switzerland and is represented abroad by the Swiss government since 1919. In 1921 Liechtenstein adopted Swiss currency. On 5 October 1921 a new constitution based on that of Switzerland extended democratic rights to Liechtenstein. It also stated that the head of the government must be a Liechtenstein citizen.

## Luxembourg

**Capital:** Luxembourg, **Area:** 2,586 sq. km, **Population:** 423,700. **Language:** English, French, German, **Literacy:** 100%, **Religion:** Christianity, **Currency:** Luxembourg Franc.

The Grand Duchy of Luxembourg is bordered by Belgium (W and N), Germany (E), and France (S). The grand duchy is drained by tributaries of the Mosel river. Climate in upland areas is cold, raw winter with snow covering the ground; and the remainder area resembles Belgium like climate. Luxembourg is a major iron and steel producer country. Other manufactures include food products, leather goods, textiles and chemicals. Grains and potatoes are grown and livestock are raised.

Since the Treaty of London on 19 April 1839 Luxembourg has been an independent nation. Luxembourg remained neutral in both World Wars. But it was invaded and occupied during World Wars by the German troops. Luxembourg was a member state to the Benelux Economic Union, European Community, and the NATO. Since 1947

there has been a series of coalition governments.

## Malta

**Capital:** Vallatta, **Area:** 316 sq. km, **Population:** 374,000. **Language:** Maltese and English (O), Italian, **Literacy:** 96%, **Religion:** Christianity, **Currency:** Lira Maltija.

The Republic of Malta is in the Mediterranean Sea, South of Sicily. Malta is composed of the islands of Malta, Gozo, and Comino. It has a Mediterranean type climate. Rainfall is not excessive but falls mainly between October and March. The economy of Malta is supported by light industry, agriculture, tourism, and shipping.

The Normans of Sicily occupied it (1090), and in 1530 Charles V granted Malta to the Knights Hospitallers, who held it until (1790) it was surrendered to Napoleon I. In 1800 the British occupied Malta. After the opening of Suez Canal Malta's strategic importance as a naval and military base increased. During World War II Malta sustained heavy Axis bombing. It became a member of the Commonwealth in 1964. British withdrawn from Malta in 1979 and its neutrality being formally declared in 1980. On 16 July 1990 Malta applied for full membership of the European Union.

## Monaco

**Capital:** Monaco, **Area:** 195 ha, **Population:** 32,000. **Language:** French, Italian, **Literacy:** 99%, **Religion:** Christianity, **Currency:** Franc.

The Principality of Monaco is bounded in the south by the Mediterranean and elsewhere by France. It has a Mediterranean climate with mild moist winters and hot summers. Economy of the country is supported by tourism, gambling and tobacco. Light industries include chemicals, plastics and precision instruments.

By the Treaty of Vienna Monaco was placed under the protection of the Kingdom of Sardinia. From 1889-1922 Prince Albert I reigned. He acquired fame as an oceanographer, and his son Louis II was instrumental in establishing the national Hydrographic Bureau.

## AROUND THE WORLD

Monaco can be modified only with the approval of the National Council. Presently the chief of state is Prince Rainier III. Monaco had 1 newspaper in 1995 with a circulation of 8,000.

### The Netherlands

*Capital:* Amsterdam, *Area:* 41,160 sq.km., *Population:* 15.7m, *Language:* Dutch, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Guilder, *Estimated GDP:* 360278, *GNP per capita:* 24760, *People infected by AIDS:* 14,000, *Doctor per 1000 people:* 2.5

The Kingdom of the Netherlands is bounded by the North sea. (N and W), Belgium (S), and Germany (E). About 40% of the land is situated below sea level and is guarded by dunes and dykes. The country is crossed by drainage canals and the main rivers and interconnected with artificial waterways. It has a cool temperate maritime climate marked by mild winters and cool summers, but with occasional continental influences. Agricultural commodities include dairy products such as poultry, and horticultural goods. Industry provides major chunk national income. Industry mainly includes textiles, machinery, iron and steel, refined petroleum, processed foods etc.

During 17th century, Netherlands's golden age, a time of commercial prosperity, colonial expansion, religious tolerance, and cultural achievements. But this supremacy was lost to France and England during 18th century. Netherlands was neutral in World War I but it suffered severely during the German occupation (1940-45) in World war II. In 1948 the Netherlands joined with Belgium and Luxembourg to form the Benelux economic Union, and in 1949 it joined NATO. On August 1998 a new coalition government of PvdA-VVD-D66 was sworn in with prime minister Wim Kok.

### Norway

*Capital:* Oslo, *Area:* 324,219 sq. km, *Population:* 4.4 m, *Language:* Norwegian, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Krone,

*Estimated GDP:* 153,363, *GNP per capita:* 34,330, *People infected by AIDS:* 1,300, *Doctor per 1000 people:* 3.1.

The Kingdom of Norway is bordered by the North Sea (SW), the Skagerrak (S), Sweden (E), Finland and the Russia (NE), the Barents Sea (N), and the Atlantic Ocean (W). Norway is a rugged, mountainous country. There is considerable variation in the climate because of the extent of latitude, the topography and the varying effectiveness of prevailing westerly winds and the Gulf Stream. Norway's economy was transformed after the discovery of large oil and gas reserves in the North Sea. Forestry, shipping and shipbuilding are the mainstays of the economy. The production of aluminum, pulp and paper, and electrical chemicals is also important.

In 1397 the Kalmar Union united Norway, Denmark and Sweden. But until 1814 Norway was ruled by Danish governors. Norway became an independent constitutional monarchy under King Haakon VII in 1905. Norway was neutral in World War I but was occupied by German troops (1940-45). Post war economic recovery was rapid. Norway broke from its traditional neutrality by joining NATO in 1949. Norway is a constitutional monarchy with a hereditary monarchy. In March 1999 election a minority coalition government was formed with prime minister Kjell Magne Bondevik.

### Poland

*Capital:* Warsaw, *Area:* 312,685 sq km *Population:* 38.7 m, *Language:* Polish *Literacy:* 99%, *Religion:* Christianity *Currency:* Zloty, *GNP per capita:* 3900, *People infected by AIDS:* 12,000, *Doctor per 1000 people:* 2.3.

The Polish People's Republic is bordered by East Germany (W), the Baltic Sea (N), the USSR (E), and Czech Republic (S). The country is generally low-lying except in the South. The climate is continental marked by long and severe winters. Rainfall amounts are moderate, with a maximum in summer. Industry grew rapidly after World War II. Leading manufactures include

and steel, machinery, cement, chemicals, processed food and textiles. Agricultural products include potatoes, sugar beets, rye, and wheat. Poland is also an important producer of coal, sulphur, and copper.

Poland takes its name from the Polanie (plain dwellers). Under Jagiello dynasty (1386-1572), Poland enjoyed its golden age. The Polish-Lithuanian state reached from Baltic to the Black Sea. In 16th and 17th Century much of the territory was lost to Russia and Sweden. The three successive partitions in 1772, 1793, 1795 among Russia, Prussia and Austria, Russia was in a position to wipe out Poland from the map of Europe. Polish nationalism grew, an independent Poland was proclaimed during World War I. The treaty of Versailles (1919) remarked Poland's boundaries. But a dispute over eastern border led to war with Russia. German and Russia invaded Poland during World War II. Germany recognised Poland's western boundary in 1970. Dispute over trade union continued during 1980s, and the government imposed martial law in 1981. After a long political unrest unconditional free parliamentary elections were held in October 1991.

## Portugal

*Capital:* Lisbon, *Area:* 92,082 sq Km, *Population:* 9.79 m, *Language:* Portuguese, *Literacy:* 87%, *Religion:* Christianity, *Currency:* Escudo, *Estimated GDP:* 102,133, *GNP per capita:* 10690, *People infected by AIDS:* 35,000, *Doctor per 1000 people:* 3.0

The Portuguese Republic is bordered by Spain (N and E) and the Atlantic Ocean (W and S). North Portugal is dominated by mountains and high plateaus, but the south is predominately rolling country side and plains. The climate ranges from the cool, damp Atlantic type in the north to a warmer and drier Mediterranean type in the south. Agriculture is not developed. Half of the country's food is imported. Agricultural products are vineyards, Olive-groves. Fishing and forestry is important. Industrial production includes mainly

textiles; clothing, footwear, and chemicals

Portugal became an independent Kingdom in 1139 under Alfonso I. The reign of John I (1383-1433) marked the Portugal's glorious period of colonial and maritime expansion. However, with the attack of Spain, Portugal's royal line declined rapidly. In 1910 a revolution overthrew Monarchy and established a Portuguese republic. In 1949 Portugal became a founder member of the NATO and in 1974 a bloodless military coup led to the restoration of full parliamentary democracy with the Socialist Party led by Mario Soares. Subsequently Portuguese overseas territories became independent. At the Presidential elections on 14 January 1996, Jorge Sampaio was elected president.

## Romania

*Capital:* Bucharest, *Area:* 236,391 sq.km, *Population:* 22.5 m, *Language:* Romanian, German, *Literacy:* 97%, *Religion:* Christianity, *Currency:* Leu, *Estimated GDP:* 34843, *GNP per capita:* 1390, *People infected by AIDS:* 5,000, *Doctor per 1000 people:* 1.8.

The Socialist Republic of Romania is bordered by Hungary (NW), Yugoslavia (SW), Bulgaria (S), the Black Sea (SE), and the USSR (E and N). It has a continental climate with an annual average temperature. Industrialisation rapidly expanded after World War II. Leading manufacturers include refined petroleum, iron and steel, chemicals, textiles, forest products and processed meats. Major agricultural productions are wheat, maize, sugar beets, potatoes and fruits.

The United Principalities of Moldavia and Wallachia were named Romania in 1852. By the Treaty of Berlin Romania's independence was recognised in 1878 and in 1881 it was proclaimed a Kingdom. Romania joined the Allies in World War I. Post war period was marked by political unrest. The Soviet occupation of Romania in 1945 led to the communist take over in 1947, and proclamation of a people's republic. The subsequent period marked by hostilities between the

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communist and democrat leaders. Emil Constantinescu sworn in on 29 Nov. 1996 as the President.

### San Marino

*Capital:* San Marino *Area:* 61.19 sq km  
*Population:* 24,5000 *Language:* Italian *Literacy:* 98%  
*Religion:* Christianity *Currency:* Italian Lira.

The Republica di San Marino is a landlocked state in central Italy, SW of Rimini. It has a temperate climate with cold, dry winters and warm summers. Farming is the main occupation of the people. Tourism and the sale of postage stamps are the chief sources of income.

San Marino is the Europe's oldest existing state. Papacy recognised the independence of San Marino in 1631. In 1944 the Allied aircraft bombed in the republic. The state is subsequently ruled by coalition governments. In May 1998 elections the Christian Democrat and the Socialist Party formed a coalition government.

### Spain

*Capital:* Madrid *Area:* 540,750 sq km, *Population:* 39.8 *Language:* Spanish, Basque, Catalan, *Literacy:* 97%, *Religion:* Christianity, *Currency:* Peseta, *Estimated GDP:* 532034 *GNP per capita:* 14080 *People infected by AIDS:* 12,000. *Doctor per 1000 people:* 4.1

The Kingdom of Spain is bordered by the Bay of Biscay and France (N), the Mediterranean Sea (E and SE), and Portugal and the Atlantic Ocean (W). Most of Spain has a form of Mediterranean climate with mild, moist winters and hot, dry summers. Spain is primarily an agricultural country with wheat, olive oil, potatoes, sugar beets and citrus fruits. Tourism and fishing are important sources of income. Industrial production mainly includes textiles, iron and steel products, ships, motor vehicles, processed foods and chemicals.

Spain has a very conquered history. By the 16th century Spain was the most powerful country in the world. But gradually the golden age began to decline. England defeated the Spanish Armada in 1588, French troops occupied Spain in

1808, and in Mid 19th century Spain was torn by internal struggle. Following the abdication of Isabella II in 1868, a short lived constitutional monarchy was established. And Spain's control over America ended in 1898 during the Spanish American War. In September 1923 Gen. Primo de Rivera led a coup and abolished the 1876 constitution. Spain recognised the independence of Morocco in 1956 after a long war and Spain also withdrew from Equatorial Guinea in 1968. After the death of Gen. Franco (1975) a gradual return to democracy began. Subsequently a referendum in 1976 paved the way for a free election on June 1977. A new constitution was drafted in December 1978. In 1998 the separatist organisation ETA announced an indefinite cease-fire.

### Slovakia

*Capital:* Ljubljana, *Area:* 49,036 sq. km, *Population:* 5.36 m, *Language:* Slovenian, *Literacy:* 99%  
*Religion:* Christianity, *Currency:* Tolar, *Estimated GDP:* 19,461, *GNP per capita:* 3,700, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.0.

The Republic of Slovakia is bounded by the Czech Republic (NW), Poland (N), Ukraine (NE), Hungary (S), and Austria (SW). It has a humid continental climate with warm summers and cold winters. Agriculture is the main occupation of the people. Main agricultural products are: wheat, barley, potatoes, vegetables, fruits. Forestry and fisheries are also important. Industrial production includes textile, glass, chemical, engineering goods and metallurgy. Mineral resources include coal, metallic ore, magnesite.

(See Czech Republic for creation of Slovakia.). On 25 and 26 Sept 1998 elections for the National Council, Vladimir Meciar's coalition government was defeated. Mikulas Dzurinda's Slovak Democratic Coalition (SDK) became prime minister and a coalition government was formed.

### Sweden

*Capital:* Stockholm, *Area:* 449,750 sq km, *Population:* 8.9 m, *Language:* Swedish.

*Literacy:* 100%, *Religion:* Christianity, *Currency:* Krona, *Estimated GDP:* 227639, *GNP per capita:* 25620, *People infected by AIDS:* 3,000, *Doctor per 1000 people:* 3.1.

The Kingdom of Sweden is bordered by Norway (W), Finland (NE), the Gulf of Bothnia (E), the Baltic Sea (SE), and the Skagerrak and Kattegat (SW). The two main geographical regions of the country are mountain in north and the low-lying in south. Rivers and over 100,000 lakes made up nearly one-third of the area. Sweden is a highly industrialised nation. Industrial production are iron ore, high grade steel, metal goods, machinery, motor vehicles and ships. Farming produces dairy products, grain, sugar beets, potatoes, livestock and poultry.

Sweden regained her independence in 1523. The war with Russia in 18th century resulted disastrous damage for Sweden. After the fall of Napoleon, Norway was taken away from Denmark and attached to Sweden. During two World Wars Sweden remained neutral. Sweden was ruled by two predominant political parties: Social Democratic, Party and the Liberal Party. In October, 1998 elections a minority Social Democratic government was formed with Goran Persson as the prime minister.

## Switzerland

*Capital:* Bern, *Area:* 41,287 sq.km, *Population:* 7.3 m, *Language:* German, Italian, French, *Literacy:* 100%, *Religion:* Christianity, *Estimated GDP:* 255265, *GNP per capita:* 40,080, *People infected by AIDS:* 12,000, *Doctor per 1000 people:* 3.2.

The Swiss Confederation is bordered by France (W), Germany (N), Austria and Liechtenstein (E), and Italy (S). About 70% of the country's area is mountainous. A narrow plateau between Jura Mts. and Alps, dwell most of the population. It has a temperate climate with two seasons with November to March (wet season) and from May to September (cool and dry). With few natural resources and largely barren soil, the country has attained advancement through technological skill

and export manufacturing. Tourism and international banking are also important source of income. Major industrial productions are: Chemicals, machinery, pharmaceuticals, watches, jewellery, textiles, and foodstuffs.

Switzerland fell successively to Germanic tribes, Swabia and Burgundy, and the Holy Roman Empire (1033). Switzerland remained neutral during the Thirty Years War, and its independence was recognised by the Peace of Westphalia in 1648. During both the World Wars Switzerland remained neutral. Ruth Dreifuss became the first female president of Switzerland on 9 Dec 1998, at the presidential election held in the United Federal Assembly.

## Russian Federation

*Capital:* Moscow, *Area:* 17,075,400 sq.km, *Population:* 147.1 m. *Language:* Russia, Uzbek, Ukrainian etc. *Literacy:* 99%, *Religion:* Christianity, *Currency:* Rouble, *Estimated GDP:* 445982, *GNP per capita:* 2300, *People infected by AIDS:* 40,000, *Doctor per 1000 people:* 4.1.

The Russian Federation is bounded by various seas (N) which join the Arctic Sea, in the east it is separated from the USA by Bering Strait, in the south it is bounded by North Korea, China, Mongolia, Khzakhstan, Georgia, Ukraine; and in the West by Belarus, Latvia, Estonia, the Baltic Sea and Finland. Main agricultural productions are grain, cotton, potatoes, sugar beets, sunflower, vegetables. It is one of the industrialised country in the world. Leading natural resources are iron ore, gold (second largest in the world), oil, platinum, copper, zinc, tin, rare metals. Forestry and fisheries support to the economic base of the country.

Formerly USSR is now represented by the Russian Federation. Soviet Russia joined in both the World Wars. After dissolution of the USSR in 1991, Russian Federation consists of 21 republics and territories, provinces and autonomous Areas. In June 1991 Boris Yeltsin elected president and again re-elected in 1995. Public expectations of restoration of democracy was weakened by

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cynicism, racketeering and bureaucratic apathy. Russian economy tumble, Russia defaulted on its debt, Rouble halved, imports fell. Rouble was devalued, domestic debt market was frozen. Yeltsin is repeatedly sacking his prime ministers and at last, at the eve of 21st century he resigned from the presidentship. Putin took the charge.

### United Kingdom

*Capital:* London, *Area:* 244,108 sq. km, *Population:* 58.2, *Language:* English, Welsh, Scots, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Pound Sterling, *Estimated GDP:* 1286488, *GNP per capita:* 21400, *People infected by AIDS:* 25,000, *Doctor per 1000 people:* 1.5

The United Kingdom of Great Britain and Northern Ireland is comprises of England, Wales, Scotland, Northern Ireland and many islands. The climate is cool temperate oceanic, with mild conditions and rainfall evenly distributed over the year. Great Britain is one of the World's industrialised nations, though it lacks raw material for industrial production. Main industries include; iron and steel, food processing, textiles, engineering, motor vehicles, chemicals, and aircraft. It is self-sufficient in petroleum. Agriculture include dairy products, cereals, beef cattle, vegetables.

Though the parliament of England and Scotland united in 1707, the term 'United Kingdom' came into being in 1800 when Ireland was joined. The 1840s saw much immigration from Ireland and from areas of political turmoil in Europe, and again 1880. Britain fought many wars to conquer or govern colonies. By the statute of Westminster in 1931, dominion status of Canada, Australia, New Zealand were classified. United Kingdom joined both the World Wars. After the end of the World War II, social upheaval in Britain was paramount. Labour government returned with a large majority, and it incorporated many socialist programmes. The concept of Commonwealth recognised British monarch as the symbolic head of its earlier colonies. Recently (1993) Britain denied her joining to the Eurozone.

### Vatican City

*Capital:* Vatican city, *Area:* 108.7 acres, *Population:* 900, *Language:* Latin, Italian, *Religion:* Christianity, *Currency:* Lira.

Vatican City is in Rome, Italy. It is the seat of the central government of the Roman Catholic Church, and the Pope is the absolute ruler. Vatican City has its own currency, postage stamps, citizenship rights, flag, diplomatic corps, newspaper, railway station, and broadcasting facilities. In 1929 the sovereignty of Vatican City was achieved by the 'Lateran Treaty' between the Papacy and the Italian government. The Commission appointed by the Pope govern the Vatican City state.

### Yugoslavia

*Capital:* Belgrade, *Area:* 102,173 sq.km, *Population:* 10.4 m, *Language:* Serb-Croatian, Albanian, Slovenian, *Literacy:* 93%, *Religion:* Christianity, *Currency:* New Dinar.

The Federal Republic of Yugoslavia, comprising the republics of Serbia and Montenegro, is bounded by Hungary (N), Romania (NE), Bulgaria (E), Macedonia and Albania (S), and the Adriatic Sea, Bosnia Hercegovina and Croatia (W). About four-fifths of Yugoslavia is mountainous. The country has a central European type of climate, with cold winters and hot summers. Yugoslavia is rich in mineral resources (bauxite, iron and copper). Leading industries include metal processing, electronics, textiles, machinery, and chemicals.

Yugoslavia came into existence after the end of World War I (1918). From 1918-29 the country was known as the kingdom of the Serbs, Croats and Slovenes. Though a constitution was established in 1921, Serbs and Croats could not unite. After Prince Paul's over throne, German attacked and Yugoslavia surrendered within 10 days. Josip Broz (nicknamed Tito), communist, succeeded in liberating Yugoslavia. A people's republic was formed with Soviet type constitution. After the death of Tito in 1980, a collective presidency came into existence. Inter-ethnic tensions grew after

1988 in Kosovo between Albanians and Serbs, and in Croatia between Serbs and Croats. In June 1991 Croatia and Slovenia made declarations of independence. The EU recognised independence of these two countries in January 1992, and also Bosnia-Herzegovina (Ap. 1992) and Macedonia (Ap. 1993). A joint UN-EC peace conference in London on Yugoslavia has no impact. Again a conference at Geneva in Sept 1992, the Croatian and Yugoslav presidents agree to solve Bosnia problem, but fighting continued. All the UN sanctions were lifted in Nov. 1995 when Bosnian-Croatian-Yugoslav (at Dayton) signed an agreement. After Slobodan Milosevic's manipulation of Municipal election results, where opposition candidates had been elected, he switched his power to become president of federal Yugoslavia. Yugoslavia, committed "horrendous human rights violations" in Kosovo when civilian unrest erupted. Massive Serbian repression in Kosovo compelled NATO to bomb against Yugoslavian military targets.

## CIS

### Azerbaijan

*Capital:* Baku, *Area:* 86,600 sq km, *Population:* 7.7 m, *Language:* Azeri, Russian, Turkish, *Religion:* Islam, *Currency:* Manat, *Estimated GDP:* 4399, *GNP per capita:* 490, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.9.

The Azerbaijan Republic is bounded by Armenia (W), Georgia and Russian Federation (N), the Caspian Sea (E), and Turkey and Iran (S). The climate is almost tropical. Agriculture is the mainstay of the country's economy. Major agricultural products are: grain, cotton, grapes, fruits, vegetables, tobacco. Industry include oil, copper, food, timber, fishing, textiles. The rich natural resources include: iron, bauxite, manganese, copper, lead, Zinc etc.

In 1936 Azerbaijan assumed the status of one of the union republics of the USSR. It achieved independence in Dec. 1991. A referendum in Jan. 1992 re-established country's full sovereignty. In

July 1997 a treaty of friendship and co-operation was signed with Russia. President Heydar Aliyev reelected on 11 Oct 1998.

### Armenia

*Capital:* Yerevan, *Area:* 29,800 sq. km, *Population:* 3.6 m, *Language:* Armenian, *Religion:* Christianity, *Currency:* Dram, *Estimated GDP:* 1628, *GNP per capita:* 480, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.1.

The Republic of Armenia is bounded by Georgia (N), Azerbaijan (E), and Turkey and Iran (S and W). Summers are very dry and hot, winters are very cold, often with heavy snowfall. The agrarian economy of the country is supported by industry. Important agricultural productions are: grains, potatoes, olive, grapes, cotton, dairy products. Industrial production include chemical, cement, textiles, food industries. Forestry and fisheries are also important.

After the end of World War I Armenia enjoyed independence for a brief period. In 1963 it was proclaimed as a participating republic of the USSR. It became full independent in Dec. 1991. A new constitution was adopted in July 1995. Most defence personnel of Armenia are from local militia or police forces:

### Belarus

*Capital:* Minsk, *Area:* 207,600 sq km, *Population:* 10.3 m, *Language:* Belorussian, Russian, *Literacy:* 98%, *Religion:* Christianity, *Currency:* Ruble, *Estimated GDP:* 22629, *GNP per capita:* 2200, *People infected by AIDS:* 900, *Doctor per 1000 people:* 4.2.

The Republic of Belarus is bounded by Poland (W), Latvia and Lithuania (N), Russia (E), and Ukraine (S). It has moderately continental and humid climate. The geographical is mountainous with a general slope towards the south. Agriculture include cattle breeding, dairy, potato, fodder, flax, grasses. Major industrial productions are: paper, chemical fiber, motor vehicle, machine tools. Peat is abundantly found beside rock slot



and iron ore. In December 1991 Belarus declared its independence and became a founder member of CIS. Moscow retained control until March 1994 following a presidential election. A referendum in Nov. 1996 extended the president's term of office from 3 to 5 years and increased presidents power.

## Estonia

*Capital:* Tallinn, *Area:* 45,227 sq. km, *Population:* 1.4 m, *Language:* Estonian, *Literacy:* 100%, *Religion:* Christianity, *Currency:* Kroon, *Estimated GDP:* 4662, *GNP per capita:* 3390, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.0.

The Republic of Estonia is bordered by the Baltic Sea (W,N), Russia (E), and Latvia (S). It has a moderate climate with cool summers and mild winters due to maritime location of the country. Agricultural production include grain, potatoes, vegetables, dairy products. The rich natural resources include timber, peat, shale deposits, limestone, dolomite clay etc. Industry mainly include electric motors, ship building, leather.

Estonia declared independence on 20 August 1991 and USSR conceded full independent status on 6 Sept 1991. Constitution was approved by June 1992 by a referendum. It provided for a 101 member *Riigikogu*, national assembly, elected for 4-year terms. President Men was re-elected in Sept 1996.

## Georgia

*Capital:* Tbilisi, *Area:* 69,700 sq. km, *Population:* 5.4 m, *Language:* Georgian, Russian, *Literacy:* 99%, *Religion:* Christianity, *Currency:* Lari, *Estimated GDP:* 5244, *GNP per capita:* 930, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.5.

The Republic of Georgia is bordered by the Black Sea (W), and Turkey, Armenia and Azerbaijan (S). Georgian climate is extremely varied ranging from humid sub-tropical zones to permanent snow and glaciers. Agriculture is the mainstay of economy which provide more than 35% of GDP in 1997. Agricultural products include

tea, grapes, grain, potatoes, silk, tobacco, eggs, milk. Fisheries, forestry, oil and gas are also important. Industry include food processing, brewery, textile, chemical fibers, metallurgy. Beside large number of manganese deposits, coal, barytes, clays, gold, marble, etc. are important.

In 1921 the territory was renamed Georgia Soviet Socialist Republic. Finally in 1936 it became a constituent republics of the USSR. Following a popular vote in favour of an independent republic, full independence was granted on 9 April 1991. Georgia joined CIS in March 1994. Georgia consists of the Autonomous Republic of Abkhaz and Adjara, 9 regions, and Tskhinvali Region (the status of this region is not yet determined).

## Latvia

*Capital:* Riga, *Area:* 64,600 sq km, *Population:* 2.4 m, *Language:* Latvian, *Religion:* Christianity, *Currency:* Lat, *Estimated GDP:* 527, *GNP per capita:* 2430, *People infected by AIDS:* Doctor per 1000 people: 3.0.

The Republic of Latvia is bordered by Estonia (N), Lithuania (SW), Russian Federation (E) and Belarus (SE). It has a relatively temperate climate due to influence of maritime factors. Agriculture is replaced by industry as the mainstay of the economy. Major industrial production include food products and beverage, textile, chemical motor vehicles, publishing, building materials. Forestry and fisheries are also important. Agricultural production include oats, barley, rye, flax, potato livestock.

Latvia came under Polish, Swedish, Russian empire and Germany very frequently. On July a People's Diet proclaimed the establishment of the Latvian Soviet Socialist Republic. The USSR conceded full independent status to Latvia in August 1991. Guntis Ulmanis re-elected president for a second term on June 1996 election.

## Lithuania

*Capital:* Vilnius, *Area:* 65,300 sq. km, *Population:* 3.7 m, *Language:* Lithuanian (O), *Religion:*

ristianity, Currency: Litas, Estimated GDP: 9585, People infected by AIDS: <100, Doctor per 1000 people: 4.0.

The Republic of Lithuania is bounded by via (N), Belarus (E and S), Poland, Russia and Baltic Sea (W). Industrial output include peat, y, fertilizers, paper, petrol, fabric, TV sets. Agriculture sector employed near about 24%. Agricultural products include grain, potatoes, sugar, vegetables, meat, milk, eggs. Forestry and fisheries are important factors to support the economic base of the country.

Lithuania absorbed into the Russian empire 1795. Following the German occupation during World War I and the Russian revolution on 16 Feb. 1918, Lithuania proclaimed independence. Heavy fighting continued, and in July 1920 a peace treaty was signed between Lithuania and Soviet Russia. On 3 August 1940 it became a Soviet Socialist Republic of the USSR. The USSR gave full independent status on 6 Sept 1991. A new constitution was approved by referendum in October 1992. Valdas Adamkus won the presidential elections held in two rounds in Dec 1997 and Jan. 1998.

## Moldova

Capital: Chisinau, Area: 33,700 sq. km, Population: 4.5 m, Language: Romanian, Russian, Ukrainian, Literacy: 96%, Religion: Christianity, Islam, Currency: Leu, Estimated GDP: 1872, GNP per capita: 410, People infected by AIDS: 25000, Doctor per 1000 people: 3.6.

The Republic of Moldova is bounded by Ukraine (E and S), and Romania (W). Moldova has a temperate climate. Economy of the country is predominately agricultural. Mineral, forestry and fisheries and supporting factors to the economy. Agricultural production include grain, sugar-beet, potatoes, vegetables, fruits, processed meat, livestock. Industrial sector include canning plants, wine making plants, metallurgical factories, building materials, textile, dairy products.

Moldavian of Soviet Russia renamed

Moldova in 1990. In December 1991 it became a member of CIS. By an agreement between Moldova and Russia in July 1992 brought to an end the armed conflict and established a 'security zone'. However, conflict continued, 7,000 Russian troops were stationed in Transnistria. Petru Lucinschi elected president in Dec. 1996.

## Ukraine

Capital: Kyiv, Area: 603,700 sq km, Population: 51.2 m, Language: Ukrainian, Russian, Lithuanian, Literacy: 98%, Religion: Christianity, Islam, Currency: Hryvnia, Estimated GDP: 49677, GNP per capita: 850, People infected by AIDS: 110,000, Doctor per 1000 people: 4.5.

Ukraine is bounded by Russian Federation (E), Belarus (N), Poland, Slovakia, Hungary, Romania and Moldova (W); and the Black Sea and Sea of Azov (S). It has a temperate continental climate with a subtropical Mediterranean climate. Industry is the mainstay of the economy. Industrial production include rolled ferrous metals, mineral fertiliser, synthetic fiber, paper, cement, sugar, footwear, motor cars, tractors, etc. Agricultural output include grain, sugar-beet, potatoes, vegetables, meat, fruits. Fisheries and forestry are also important.

Following the Bolshevik revolution, the Ukrainians in Russia established an independent republic in 1917, and in 1918 Austrian Ukraine proclaimed itself a republic. The Russian troops adopted some drastic efforts to suppress the nationalism in Ukraine. The USSR re-taken Ukraine in 1944 from Germany occupation and parts of Bessarabia and northern Bukovina were added to Ukraine. In December 5, 1991 the Supreme Soviet declared Ukraine's independence and it joined the CIS. Conflict erupted between Russia and Ukraine regarding possession and transfer of nuclear weapons, military and political integration within the CIS and Russian's supply of fuel to Ukraine. Leonid Kuchma elected president in July 1994. In parliamentary elections in March 1996, the Communist Party of Ukraine emerged as the

single largest party.

## Uzbekiston

*Capital:* Tashkent, *Area:* 447,400 sq. km, *Population:* 24.1 m, *Language:* Uzbek, Russian, *Religion:* Islam, *Literacy:* 97%, *Currency:* Soum, *Estimated GDP:* 25047, *GNP per capita:* 870, *People infected by AIDS:* < 100, *Doctor per 1000 people:* 3.2.

The Republic of Uzbekiston is bounded by Kazakhstan (N), Kyrgyzstan and Tjikistan (E), Afghanistan (S), and Turkmenistan (W). The agrarian economy of Uzbekistan is supported by industry, forestry, fisheries, oil and gas and minerals. Major agricultural productions include potatoes, grapes, fruits, vegetables, cotton, livestock. Industrial production include fertilizer, agricultural and textile machinery, aircraft, cement, chemical fiber, footwear etc. Major minerals are coal, gold, silver, uranium, copper, lead, zinc and tungsten.

In the late 19th century the Uzbeks came under Russian control. On 27 October 1924 the Uzbek Soviet Socialist Republic was formed and in 1963 40,000 sq. km. are were transferred from Kazakhstan. In August 1991 the Supreme Soviet declared independence as the "Republic of Uzbekistan" in December, 1991, it became a member of the CIS and changed the spelling to "Uzbekiston". A new constitution was adopted in Dec 1992 paving the way for a populist democracy. Presently (March 1999) Islam Karimov is the president and Ulkur Sullanov as the prime minister.

## Kazakhstan

*Capital:* Astana, *Area:* 2717300 sq km, *Population:* 16.9 m, *Language:* Kazakh, Russian, German, *Literacy:* 98%, *Religion:* Islam, Christianity, *Currency:* Tenge, *Estimated GDP:* 22165, *GNP per capita:* 1310, *People infected by AIDS:* 2500, *Doctor per 1000 people:* 3.6.

The Republic of Kazakhstan is bounded the Caspian sea and Russia (W), Russia (N), China (E), and Uzbekiston and Kyrgyzstan (S). It has a

fairly dry climate. Winters are cold but spring comes earlier in the south than in the north. Industry taken the lead replacing agriculture. Major agricultural productions are tobacco, rubber, cotton, vegetables, sugar beet, livestock. Fisheries, forestry, and minerals (nickel, gold, iron ore, lead, manganese etc.) are important source of income. Chief industrial productions include ferroalloy, fertilizer, chemical fiber, fabrics, tractors, etc.

In 1924 the Soviets of the Turkestan, Bokhara and Khiva Republics decided to distribute the territories on a nationality basis. The districts of Turkestan inhabited by Kazakhs were united under the banner of Kazakhstan and became a constituent Autonomous Soviet Republic in 1936. However, in 16 Dec 1991 Kazakhstan declared independent and joined CIS. A new constitution was adopted by referendum in August 1995. Nursultan Nazarbaev re-elected president in 1999.

## Kyrgyzstan

*Capital:* Bishkek, *Area:* 199,900 sq. km, *Population:* 4.5 m, *Language:* Kirghiz, Russian, *Literacy:* 97%, *Currency:* Som, *Religion:* Islam, Christianity, *Estimated GDP:* 1764, *GNP per capita:* 350, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.3.

The Republic of Kyrgyzstan is bordered by China (E), Kazakhstan and Uzbekiston (W), Kazakhstan (N), and Tajikistan. The country has a varied climatic condition ranging from dry continental to polar, sub-tropical, and temperate. Agriculture is the mainstay of the economy, supported by industry, fisheries and forestry. Principal agricultural products include grain, cottonseed, sugarbeet, potatoes, vegetables, fruits, tobacco. Industrial enterprises include sugar refineries, cotton and wood clean sing works, tobacco factory, textile, cement, footwear. Beside coal, gold is also mined.

In December Kyrgyzstan became a Soviet Socialist Republics of the USSR, and it became a member of CIS in Dec. 1991. On 5 May, 1993 a

new constitution was adopted. Akaev was re-elected president in Dec. 1995 presidential elections. Kyrgyz Radio and Kyrgyz TV are state controlled.

## Tajikistan

*Capital:* Dushanbe, *Area:* 143,100 sq km, *Population:* 6.2 m, *Language:* Tadjik, Russian, *Religion:* Islam, *Currency:* Tajik Rouble, *Literacy:* 99%, *Estimated GDP:* 1990, *GNP per capita:* 350, *People infected by AIDS:* <100, *Doctor per 1000 people:* 2.0.

The Republic of Tajikistan is bounded by Uzbekistan and Kyrgyzstan (N and W), China (E), and Afghanistan (S). The climate is comparatively dry, winters are cold but spring comes earlier. Major agricultural productions are grain, potatoes, vegetables, fruits, meat and eggs. Important industries include aluminum, textile machinery, silk mills, refrigerators, hydroelectric power. Mineral deposits include coal, lead, Zinc, iron ore, gold, silver.

In December, 1999, Tajikistan became a member of the CIS. A state of emergency was imposed to quell the civil war in Jan. 1993. And finally the seven year bloody civil war came to end in June 1997 when the opposition leaders and the government signed the peace treaty. In Nov. 1994 a new constitution was approved by enhancing power of the president. Emomali

Rakhmonov re-elected president in November 1994.

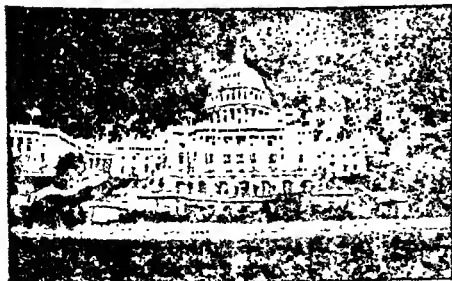
## Turkmenistan

*Capital:* Ashgabat, *Area:* 448,100 sq. km, *Population:* 4.3 m, *Language:* Turkmen, Russia, *Religion:* Islam, *Currency:* Manat, *Literacy:* 99%, *Estimated GDP:* 4397, *People infected by AIDS:* <100, *Doctor per 1000 people:* 3.2.

The Republic of Turkmenistan is bounded by Kazakhstan(N), Uzbekiston (N and NE), Afghanistan (SE), Iran (SW), and the Caspian Sea (W). The country has an abundant source of oil and natural gas. Agricultural production include cotton, wheat, barley, maize, wool, corn, livestock. Major industries include oil refining, gas extraction, chemicals, fertilizers, textile and clothing, cement.

Turkmen were descended from the Oghuz tribes who were migrated to the Central Asia in the 10th Century. Turkmenistan declared independence in October 1991 and subsequently it became a member of the CIS in December of the same year. A constitution was adopted in 1992 which provide for an executive head of state, the *Turkmenbashi* or Leader of Turkmens. By a referendum on 16 January 1999 people voted overwhelmingly proclaiming president Niyazov's term of office to the year 2002. □

# NORTH AMERICA



North America is the third largest continent, comprising of 24,346,000 sq. km. The US and Canada known as Anglo America. Collective term 'Central America' applied to the six nations of North America lying SE of Mexico, they are: Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua and usually Panama. The Countries of North America are the US, Canada, Mexico, Central America and the countries of the West Indies or Caribbean islands.

The climate ranges from polar to tropical, with arid and semiarid conditions. Central America is predominantly mountainous in interior with an active zone of volcanoes and earthquakes. Though Central America is culturally rich, the area has suffered chronic economic and political problems because of landholding system leaves a vast gulf between rich and poor.

Following are given the countries of North America, their capital and the year of admission to the UNO of the respective countries.

Name of the country	Capital	Year of Admission to the UNO
Canada	Ottawa	1945
U.S.A	Washington, Dc	1945
Antigua & Barbuda	St. John's	1981
Bahamas	Nassau	1973
Barbados	Bridgetown	1966
Belize	Belmopan	1981
Bermuda	Hamilton	-
Costa Rica	San Jose	1945
Cuba	Havana	1945
Dominica	Roseau	1978
Dominican Republic	Santo Domingo	1945
El Salvador	San Salvador	1945
Grenada	St. George's	1974
Guatemala	Guatemala City	1945
Haiti	Port-au-Prince	1945
Honduras	Tegucigalpa	D.C. 1945
Jamaica	Kingston	1962
Mexico	Mexico City	1945
Nicaragua	Managua	1945
Panama	Panama City	1945
St. Kitts & Nevis	Basseterre	1983
St. Lucia	Castries	1979
St. Vincent	Kingstown	1980
Trinidad & Tobago	Port of Spain	1962

## Canada

**Capital:** Ottawa, **Area:** 9,976, 169 sq. km., **Religion:** Christianity, **Language:** English, French, **Literacy:** 99%, **Currency:** Canadian Dollar, **Estimated GDP:** 607,744, **GNP per capita:** 20,020, **People infected by AIDS:** 44,000, **Doctor per 1000 people:** 2.2

The Dominion of Canada, second largest country in the world, border with the US including

adjacent islands of the Arctic Archipelago. It comprises 10 provinces and two federal territories. Canada's climate ranges from polar conditions in the north to cool temperature in the south. Agriculture and industry, are highly developed. Canada ranks first among world mineral exports. The extensive forest cover (4 million sq. km.) supports large exports of newsprint, pulp and paper, and other forest products.

John Cabot discovered Newfoundland in 1497 for England and Jacques Cartier discovered the mouth of the St. Lawrence R. and the Gaspé Peninsula for France in 1542. French traders, explorers and missionaries rapidly extended deep into North America. However, British interest grew after 1670 by commercial efforts of the Hudson's Bay Company. When British settlement accelerated in Quebec, tensions mounted with the French residents. It culminated by dividing Quebec (1791) into upper Canada (English speaking) and Lower Canada (French speaking). In 1841 both were merged to form a single colony called Canada Province. In 1982 Canada's constitution was returned to the Canadians with 'Charter of rights'. In 1987 the 'Meech Lake Agreement' established a ground for solving provincial federal tensions by recognising Quebec as a 'distinct society' within the confederation.

## USA

**Capital:** Washington, D.C., **Area:** 9,363, 123 sq. km., **Religion:** Christianity, Jew, Buddhism, **Language:** English, Spanish, **Literacy:** 99%, **Currency:** Dollar, **Estimated GDP:** 7,834,036, **GNP per capita:** 29,340, **People infected by AIDS:** 820,000, **Doctor per 1000 people:** 2.5

The United States of America is the World's fourth largest country both in area and population. It is a federal republic consisting of 50 states and a federal district. The USA extends across central N. America from the Atlantic Ocean (E) to Pacific Ocean (W) and from Canada (N) to Mexico & the Gulf of Mexico (S). Climate Varies greatly ranging from polar conditions to arid desert temperatures.

cost temperature and Gulf Coast Sub-tropical. The coterminous US is dominated by eastern and western mountain complexes, the north east has many fine harbours. There are several deserts in the southwest. The US is the principal industrial nation in the world and has tremendous agriculture and mineral resources.

England, Spain and France are the chief European nations to establish colonies in present day USA. Spain first settled in St. Augustine (Florida) in 1565 and first English settlement at Jamestown (Virginia) in 1607. Gradually the British ousted the French from Canada and the West. The conflict between American colonies and Britain metamorphosed into American Revolution, the Declaration of Independence in 1776 and the creation of the U.S. By the Articles of Confederation the US governed from 1781 under the constitution drawn up at the Federal Constitutional Convention (1787). George Washington served as the first president. Over the issue of slavery the South estranged from the North. The civil war ended in complete victory for the North. After the Great Depression in 1929, President Roosevelt launched a sweeping reform programme called the New Deal. After the end of World War II, the US emerged as a world power. Deteriorating relations with USSR led to Cold War. Ronald Reagan (1981) initiated economic plan to check high inflation and increasing unemployment. The Democrats gained control of the white house with the election of Bill Clinton. But in his second terms, Bill Clinton was dogged by sexual scandal, leading to an impeachment trial.

## Antigua and Barbuda

**Capital :** St. John's, **Area :** 442 sq. km., **Population :** 80,000, **Language :** English and Patois, **Literacy :** 90%, **Religion :** Christianity, **Currency :** Eastern Caribbean Dollar.

The island nation consists of three islands: Antigua, Barbuda and Redonda. The Antigua is a hilly island with estates that grow some sugarcane and cotton.

In 1492 Christopher Columbus discovered the island and in 1632 the British successfully settled the island. Sugar plantation was introduced by the British. With the abolition of slavery in 1834 industrial production reduced. In 1981 it achieved full independence. The US maintains two military bases in Antigua and Barbuda which participated in US-led invasion of Grenada in 1983.

## Bahamas

**Capital :** Nassau, **Area :** 13,900 sq. km., **Population :** 293,000, **Language :** English, **Literacy :** 93%, **Religion :** Christianity, **Currency :** Bahamian Dollar.

The Commonwealth of the Bahamas in the Atlantic Ocean is consisting of 700 islands and islets and about 2400 cays. Most of the islands are low, flat and riverless, and many are uninhabited. Tourism is the major industry, although sugar and oil refining industry to diversify the economy.

In 1600s the British settled the Bahamas and imported blacks to work cotton plantations. The Black Bahamians take control of the government from the white minority in 1960s and got independence in 1973.

## Barbados

**Capital :** Bridgetown, **Area :** 430 sq. km., **Population :** 263,000, **Language :** English, **Literacy :** 99%, **Religion :** Christianity, **Currency :** Barbados Dollar.

The island state Barbados lies to the east of the major islands in the Windward chain. Barbados is generally low-lying with no rivers but ample rainfall from June to December. Sugarcane cultivation is the major source of country's economy. Fishing, finished clothes, electrical components and plastics are other sources of income. Tourism is the main source of foreign exchange.

Probably the Portuguese discovered and named Barbados. However, the British first settled in early 1600s. British introduced sugar economy (Cultivation of sugarcane). Barbados became a separate colony of Britain in 1885 and got full independence in 1966.

### The Caribbean Islands

	Capital	Area (Sq.km)	Currency
Anguilla	The Valley	155	Eastern Caribbean Dollar
Aruba	-	193	-
British Virgin Islands	Road Town	130	US Dollar
Cayman Islands	George Town	260	Cayman Island Dollar
French Guiana	-	83,533	-
Guadeloupe	-	1,702	-
Martinique	-	1,079	-
Montserrat	Plymouth	106	French Caribbean Dollar
Netherlands Antilles	-	800	-
Puerto Rico	-	3,459	-
Virgin Islands (USA)	-	132	-

independence in Nov. 30, 1966. Since then political power has alternated between the Democratic Labour and Barbados Labour Parties

### Belize

*Capital* : Belmopan, *Area* : 22,963 sq. km., *People* : 2,00,000, *Language* : English, Spanish, Mayan dialects, *Literacy* : 93%, *Religion* : Christianity, Bahais, *Currency* : Belize Dollar

Belize is bordered by Mexico (N), Guatemala (S,W) and the Caribbean Sea (E). The land is generally low-lying, forested and under cultivated with a swampy coastline and some low mountains in the south. The Belize economy is founded on timber, sugar and citrus fruit exports.

Christopher Columbus visited Belize in 1502. In 1638 British Woodcutters established settlement. In 1862 the country was named the colony of British Honduras. On 21 Sept 1981, British Honduras, as Belize became independent.

### Bermuda

*Capital* : Hamilton, *Area* : 53.3 sq. km, *Currency* : Bermuda Dollar

Bermuda is comprising 300 coral rocks, islets and islands in the Atlantic Ocean. Tourism is

the mainstay of Bermuda's economy. Bermuda group of islands were first discovered in 1503 by Juan Bermudez, named after his name. He was a Spanish navigator. In 1684 the island became the responsibility of the British Crown. Internal self government was granted in 1968.

**Cold War** : The term 'cold war' used to describe the political and economic struggle between the capitalist, democratic Western powers and the Soviet block after World War II. The origins of the Cold War lay in the forcible takeover of Poland and Czechoslovakia by Soviet. By the early 1960s tensions had relaxed.

### Costa Rica

*Capital* : San Jose, *Area* : 50,700 sq. km., *Population* : 3.7 m, *Language* : Spanish, *Literacy* : 95%, *Religion* : Christianity, *Currency* : Colone, *Estimated GDP* : 9521, *GNP per capita* : 2760, *People infected by AIDS* : 10,000, *Decease per 1000 people* : 0.9.

The Republic of Costa Rica is bordered by Nicaragua (N), the Caribbean Sea (E), Panama (S), and the Pacific Ocean (W). The coastal areas are hot, humid, heavily forested. Costa Rica is an agricultural nation, exporting coffee, sugar, meat and bananas.

Christopher Columbus discovered the land and named 'Rich Coast' in 1502. The country became independent from Spain in 1821 and a sovereign republic in 1838. Costa Rica's history of democratic government began in 1889, and has interrupted only by brief periods of junta rule (1917-19 and 1948-49) after a disputed election sparked a six-week civil war. In recent decades political power has alternated between the (Social) National Liberation Party (PLN) and conservative alliances. Costa Rica was beset with economic problems in the early 1990s when several politicians, including President Calderon, were accused of profiting from drug trafficking.

**Cot Death** : Sudden infant death syndrome (SIDS) or cot death is unexpected and unexplained death of an infant under one year. The risk is

higher in males, in low-birth-weight infants, in lower socio-economic levels and during cold months.

## Cuba

*Capital* : Havana, *Area* : 114,524 sq. km.  
*Population* : 11.1 million, *Language* : Spanish, *Literacy* : 96%, *Religion* : Christianity, *Currency* : Peso, *People infected by AIDS* : 1,400, *Doctor per 1000 people* : 3.6

The Republic of Cuba, in the Caribbean Sea, is the largest island in the West Indies. The main island has three mountain regions but is gently rolling. The climate is subtropical. Cuba is the largest producer of sugar in the world. Coffee, rice, corn, citrus fruits, and tobacco are grown; nickel is mined and there are fishing industries to support country's sugar economy.

Columbus discovered the island of Cuba in 1492 and Spain colonized it from 1511 to December 10, 1898. Spain was forced to withdraw following the war with the US. Cuba became a republic in 1901 after three years of occupation. However, the US influenced Cuba's internal affairs and controlled foreign policies until 1934 when Roosevelt ended the agreement. Fidel Castro Ruz returned to Cuba in 1956 after taking refuge in Mexico. Castro managed to go underground and his insurgents overthrew Batista's dictatorship and proclaimed the Socialist Republic of Cuba on January 1, 1959. Castro introduced agrarian reform and highly literacy programme. Nationalisation of sugar refineries and oil refineries in 1959 went against the US monopoly. This forced J.F. Kennedy to take strong measures to prevent Soviet missiles to reach Cuba. A new constitution adopted in 1976. Following the Pope's visit to Cuba in Jan. 1998, bitter relations between Cuba and USA eased to some extent. President Clinton announced a package of measures to alleviate poverty.

## Dominica

*Capital* : Roseau, *Area* : 759 sq. km., *Population* : 83,000, *Language* : English, Creole, *Literacy* : 90%, *Religion* : Christianity, *Currency* : East Caribbean Dollar.

The Commonwealth of Dominica lies between Guadeloupe and Martinique. It is the largest island of the Windward Islands. Dominica is mountainous and forested, of volcanic origin, fertile soil, a mild climate and heavy rainfall. The major export crops are bananas and coconuts. Dominica is subject to frequent hurricanes.

Columbus planted a cross in 1493. It became a British colony in 1783. Dominica has been a fully independent member of the British Commonwealth since Nov. 3, 1978. In 1979 and 1980 hurricane left 60,000 people homeless. Mrs. Maria Eugenia Charles became the first woman Prime Minister in 1980 from Dominica Freedom party. Again she was re-elected in 1985.

## Dominican Republic

*Capital* : Santo Domingo, *Area* : 48,442 sq. km., *Population* : 8.2 million, *Language* : Spanish, *Literacy* : 83%, *Religion* : Christianity, *Currency* : Peso, *Estimated GDP* : 15,039, *GNP per capita* : 1,770, *People infected by AIDS* : 83,000, *Doctor per 1000 people* : 1.1

The Republica Dominicana occupies the eastern two-thirds of the West Indies. The landmass ranges from mountainous to gently rolling with fertile river valleys. The climate is subtropical. Sugar is the mainstay of economy. Exported items are cocoa, coffee, bananas and tobacco. It has a growing tourist industry.

During 16th and 17th Century Dominican Republic was a part of Spanish colony. Then Haitian rule after 1821. It got full independence only after 1965. The US occupied the country during 1916-24. In 1930 Rafael Trujillo Molina began 30 years of corrupt dictatorship which ended in 1961. Under Joaquin Balaguer (1966-78) the country achieved considerable progress towards economic stability. Balaguer was returned to power in 1994, but the 1995 elections brought in a reforming government pledged to act against corruption.

## EL Salvador

*Capital* : San Salvador, *Area* : 21,393 sq. km., *Population* : 6.1 million, *Language* : Spanish,



*Literacy : 75%, Religion : Christianity, Currency : Colon, Estimated GDP : 11,264, GNP per capita : 1,850 People infected by AIDS : 18,000, Doctor per 1000 people : 0.7*

The Republic of EL Salvador is bordered by the Pacific Ocean (S), Guatemala (W) and Honduras (N and E). Fertile Valleys are the nations heartland. Coffee has dominated countrys economy. Sugar and cotton are other exported items. Light industry includes textile manufacture and food processing.

EL Salvador declared independence in 1821. In 1839 it was plagued by frequent interference from Guatemala and Nicaragua. The establishment of coffee cultivation in late 19th century led to unequal distribution of wealth, basis for future unrest and several dictatorship. Failure of land reform in the 1970s led to guerrilla warfare. A new constitution was enacted in Dec. 1983. The talks between the government and the Farabundo Martí National Liberation Front (FMLN) in April 1991 led to constitutional reform in 1991. FMLN permitted to participate in a newly created police force under civilian authority. In Jan. 1992 the government and the FMLN signed a peace agreement and a ceasefire which began on 1 February 1992.

### Grenada

*Capital : St George's, Area : 344 Sq km., Population : 98,000, Language : English, French, Literacy : 85%, Religion : Christianity, Currency : Eastern Caribbean Dollar.*

The island nation Grenada is a volcanic, mountainous island on which bananas, sugar, coconuts, cotton and limes are grown for export. The climate is semi-tropical with annual rainfall around 60 inches.

Columbus came across Grenada in 1492 and the French were first to colonize in 16th century. In 1762 the island was captured by British navy. In 1967 Grenada became an independent nation within the British Commonwealth. Elections in 1984 resulted in a victory for the (Conservative) New National Party,

### Guatemala

*Capital : Guatemala City, Area : 108,88 sq. km., Population : 11.6 million, Language : Spanish and Indian dialects, Literacy : 55%, Religion : Christianity, Currency : Quetzal, Estimated GDP : 17,772, GNP per capita : 1,640, People infected by AIDS : 27,000, Doctor per 1000 people : 0.3*

The Republic of Guatemala is bordered by Mexico (N and W), Belize and Caribbean Sea (E), Honduras and EL Salvador (SE) and Pacific Ocean (SW). Coffee accounts for more than half of the country's economy. Though subject to hurricanes and earthquakes, the climate is called 'eternal spring' neither hot nor spring.

After independence in 1821, Guatemala became the nucleus of the Central American Federation. Guatemala's modern history has been a mixture of military dictatorship and frequent political unrest. From 1970 the country was dominated by conservative military elements. On December 1996, the final treaty signed between the government and the Guatemalan Revolutionary Union (URNG). This agreement consolidated electoral system and economy.

**Flying Squirrel :** Flying squirrels do not actually fly. The giant flying squirrel of Asia is 1.5 m long, but they are usually about 60 cm long. When the animal extends its limbs in leaping, the flaps (folded along each side of the body) stretch out taut like a parachute.

### Haiti

*Capital : Port-au-Prince, Area : 27,750 sq. km., Population : 7.5 million, Language : French, Creole, Literacy : 53%, Religion : Christianity and Voodoo, Currency : Gourde, Estimated GDP : 2815, GNP per capita : 410, People infected by AIDS : 190,000, Doctor per 1000 people : 0.1*

The Republic of Haiti is on the western third of the island of Hispaniola. Subsistence farming is the principal occupation. Coffee is the major export.

Under French rule from 1697, Haiti became

of the world's richest sugar and coffee producers. In 1804 Haiti became the second independent nation in the Americas. In 1986 a military government headed by Gen. Henry Duvalier took power. J.B. Aristide was elected president in Dec. 1990, deposed in 1991 and returned to office on 15 October. 1994.

## Honduras

*Capital* : Tegucigalpa D.C., *Area* : 112,088 km., *Population* : 6.1 million, *Language* : Spanish, *Literacy* : 73%, *Religion* : Christianity, *Currency* : Lempira, *Estimated GDP* : 4491, *GNP per capita* : 730, *People infected by AIDS* : 43,000, *Doctor per 1000 people* : 0.4

The Republic of Honduras bordered by the Caribbean Sea (N), Nicaragua (E and S), El Salvador and the Pacific Ocean (SW) and Guatemala (W). Over 80% of the land is mountainous, the East are the swamps and forests of the Mosquito coast. The climate is tropical, with a small annual range of temperature but with high rainfall. Bananas dominate the economy. Coffee, timber, cotton, tobacco are other exported items. Hurricane Mitch in October 1998 is believed to have set back the economy by 15 to 20 years.

The region was colonised after 1524 by the Spanish. Honduras gained independence in 1821 and a separate republic in 1838. Foreign influence and conservative government were the rules from 1890 to 1950s. From 1963-1981 the country was under military rule. Internal unrest continued into the 1990s. In October 1998 devastation caused by Hurricane Mitch. Honduras is a member of UN and OAS.

## Jamaica

*Capital* : Kingston, *Area* : 11,425 sq. km., *Population* : 2.59 million, *Language* : English, *Literacy* : 85%, *Religion* : Christianity, *Currency* : Jamaican Dollar, *GNP per capita* : 1680, *Estimated GDP* : 4135, *People infected by AIDS* : 1,000, *Doctor per 1000 people* : 0.5

The island Republic Jamaica lies in the Car-

ibbean Sea, South of Cuba and West of Haiti. Most of Jamaica is an elevated plateau with mountainous spine, but there are low-lying plains along the north and south coast. It has a tropical climate with considerable variation. The economy is based on sugar, bauxite, and tourism. Besides sugar, export crops are coffee, banana and tobacco.

Columbus discovered Jamaica in 1494. England captured the island in 1655. After abolition of slavery in 1838 sugar production declined and caused economic hardship and civil unrest. In 1884 a partially elected legislative council was instituted. In 1944 universal adult suffrage was introduced and in 1962 Jamaica became a fully independent member of the Commonwealth. At the elections of Dec. 1997 the People's National Party (PNP) gained 60 seats and the Jamaica Labour Party 8.

## Mexico

*Capital* : Mexico City, *Area* : 1,972,547 sq. km., *Population* : 95.8 million, *Language* : Spanish, *Local Indian Languages*, *Literacy* : 92%, *Religion* : Christianity, *Currency* : New Peso, *Estimated GDP* : 402,953, *GNP per capita* : 3970, *People infected by AIDS* : 180,000, *Doctor per 1000 people* : 1.3

The United Mexican States is bordered by the US (N), the Gulf of Mexico and the Caribbean Sea (E), Belize and Guatemala (SE) and Pacific Ocean (W). The country is mainly mountainous and near about 15% land is arable. To the south lies a chain of extinct volcanoes. Since World War II Mexico has enjoyed considerable economic growth. Cotton, coffee, sugar and tomatoes are major export crops. It has considerable mineral resources. Major mineral export items are zinc, sulphur, silver, copper. Tourism and industry are well developed.

Great Indian civilizations flourished in Mexico before arrival of the Spanish. Spain conquered it in 1519 and exploited the mineral wealth. In 1821 Spain accepted Mexican independence but in 1823 army officers established a federal republic. A four-

dation for reform was laid by Venustiano Carranza's constitution in 1917. In 1929 Plutarco founded the National Revolution Party (renamed the Institutional Revolution Party or PRI) ruled Mexico ever since. In recent years Mexico has been beset by financial crises which have taken the shine off an otherwise booming economy. In 1994-95 the government stepped in to save the banking system by buying in bad loans of up to 552 bn. pesos.

### Nicaragua

*Capital* : Managua, *Area* : 128,410 sq. km., *Population* : 4.5 million, *Language* : Spanish and English, *Literacy* : 74%, *Religion* : Christianity, *Currency* : Cordoba, *Estimated GDP* : 1971, *People infected by AIDS* : 4,100, *Doctor per 1000 people* : 0.6

The Republic of Nicaragua is bordered by Honduras (N), the Caribbean Sea (E), Costa Rica (S), and the Pacific Ocean (SW). The people live mainly on a narrow, volcanic belt between the Pacific and Lakes Managua. The country's economy is mainly depend upon agriculture. There are also gold and salt mines. Exported items are coffee, cotton, sugarcane and meat.

Nicaragua achieved independence in 1821 and in 1838 it became a separate republic. The US interference was frequent regarding inter-ocean waterway in Nicaragua. The US marines remained until 1933. President Somoza Garcia ruled as his private domain from 1937 to 1956. The Sandinist National Liberation Front (FSLN) overthrown the Somoza regime in 1979. Election in 1984 resulted a substantial victory for the FSLN. In oct. 1998 Hurricane Mitch devastated the country causing 3,800 deaths.

### Panama

*Capital* : Panama City, *Area* : 77,082 sq. km., *Population* : 2.8 million, *Language* : Spanish, English, *Literacy* : 91%, *Religion* : Christianity, *Currency* : Balboa, *Estimated GDP* : 8244, *GNP per capita* : 3080, *People infected by AIDS* : 9,000,

*Doctor per 1000 people* : 1.8

The Republic of Panama is bordered by Costa Rica (E), the Caribbean Sea (N), Colombia (W), and the Pacific Ocean (S). There are mountains in the E and W, and lowlands along both coasts. It exports banana, shrimp, sugar and petroleum derivatives.

The discovery of the short distance from sea to sea has dominated Panama's history ever since. In 1903 Panama supported by the US revolted and became a separate republic. The Panama Canal was completed in 1914. A left regime was established in 1968 following a military coup. After much agitation and prolonged negotiations, the US turned over the Canal Zone to Panama in 1979. Accused as a drug dealer, Gen. Noriega convicted by a court in Miami and is now serving a 40 year jail sentence. Currently Panama is preparing for life without assistance from America.

### Panama Canal

The Panama Canal across the Isthmus of Panama, connects the Atlantic and Pacific Ocean. The Canal was built by US Military engineers in 1904-14. The canal is 82 km. (51 mile) long, has six locks, and traverses two natural lakes. The Panama Canal Zone (1432 sq. km.) which extends 8 km. on either side of the canal, was returned to Panama in 1979. In Dec. 1999 former US President Jimmy Carter handed over the Sovereignty of the canal to Panamanian President Mireya Moscoso. Picture of Panama : 133 of Frontline, Jan. 7, 2000.

### St. Kitts-Nevis

*Capital* : Basseterre, *Area* : 269, sq. km., *Population* : 43,500, *Language* : English, *Literacy* : 98%, *Religion* : Christianity, *Currency* : East Caribbean Dollar

The Federation of St. Kitts and Nevis is situated in the Leeward Islands in the eastern Caribbean. The state consists of two islands, St. Kitts and Nevis. The economy is supported by tourism, fishing and livestock.

Columbus discovered islands of St. Kitts and Nevis in 1493. Settled by Britain in 1623 & 1628, the ownership was disputed with France until 1783. St. Kitts was granted full independence on 19 Sept. 1983. A referendum held on August 10, 1998 voters rejected independence of Nevis from St. Kitts. In November 1998 Hurricane George caused devastation.

### St. Lucia

**Capital:** Castries, **Area:** 616 sq. km., **Population:** 158,000, **Language:** English and French Creole, **Literacy:** 80%, **Religion:** Christianity, **Currency:** East Caribbean Dollar.

The Island of St. Lucia lies in the Windward Islands group in the Caribbean. The island is of volcanic formation with a hilly interior. The economy is mainly agricultural. Bananas, Cocoa, Coffee and coconut oil are chief products. European explorers discovered St. Lucia in 1500. The British established a colony in 1651. Finally the island was ceded to Britain in 1814 after a century of struggle between the British and the French. St. Lucia became independent on Feb. 22, 1979.

### St. Vincent

**Capital:** Kingstown, **Area:** 388 sq. km., **Population:** 118,300, **Language:** English, **Literacy:** 96%, **Religion:** Christianity, **Currency:** East Caribbean Dollar.

St. Vincent and the Grenadines, the full

name, lies at the lower end of the Caribbean chain of Windward Islands. St. Vincent is predominantly agricultural and the world's chief producer of arrowroot, sugarcane, bananas, coconuts and citrus fruits. In 1773 the Caribs recognised British sovereignty over St. Vincent. The islands were part of the Windward Islands until January 1960. On 27 October 1979 St. Vincent and the Grenadines were given full independence.

### Trinidad and Tobago

**Capital:** Port-of-Spain, **Area:** 5124 sq. km., **Population:** 1.3 million, **Language:** English, **Literacy:** 98%, **Religion:** Christianity, Hinduism, Islam, **Currency:** Trinidad and Tobago Dollar, **Estimated GDP:** 5,892, **People infected by AIDS:** 6800, **Doctor per 1000 people:** 0.7

The Republic of Trinidad and Tobago is comprising of the Islands of Trinidad and Tobago. Trinidad is predominantly flat with low mountains in the north. Tobago is Mountainous and forested. The climate is warm and humid in both the islands. The country exports chemicals, petroleum products, bananas, cocoa and sugar. Columbus discovered Trinidad in 1498 and ceded to Britain in 1815. In late 1700s Tobago became British colony. In 1888 both the islands were politically united. In 1952 they became an independent state and a republic in 1976. The 1986 elections resulted in a landslide victory for the reformist National Alliance for Reconstruction led by A.N.R. Robinson.

## SOUTH AMERICA

South America is the fourth largest continent with an area of 17,819,000 sq. Km. It is connected to North America by the Isthmus of Panama. The great chain of the Andes Mts. is the dominant land form. Major lowlands include, the llanos, the basin of the Amazon (the world's largest rain forest), the Gran Chaco and the Pampas.

South America is rich in iron ore, copper,

tin, hydroelectric potential, and has significant oil deposits. South American Indians are the aboriginal people of South America. Since the Spanish conquest Indians have been used as labourers, poorly paid and denying political representation. Things began to change. Some Indians, particularly the Inca, play a significant role in the national culture. The Indians of South America continue to

be assimilated into white-dominated national cultures as their traditional ways of life.

Following are given the countries of South America, their capital, and the year of the respective countries.

Country	Capital	Year of admission to the UNO
Argentina	Buenos Aires	1945
Bolivia	La Paz (administrative) and Sucre (Judicial)	1945
Brazil	Brasilia	1945
Chile	Santiago	1945
Colombia	Bogota	1945
Ecuador	Quito	1945
Guyana	Georgetown	1966
Paraguay	Asuncion	1945
Peru	Lima	1945
Suriname	Paramaribo	1975
Uruguay	Montevideo	1945
Venezuela	Caracas	1945

## Argentina

*Capital.* Buenos Aires *Area.* 2,780,400 Sq. Km, *Population.* 36.1 m. *Language* Spanish, Italian. *Literacy* 95%. *Religion* Christianity. *Currency.* Peso, *Estimated GDP* 325,012, *GNP per capita* 8970 *People infected by AIDS* 120,000. *Doctor per 1000 people* 27

The Argentine Republic is bounded by Bolivia (N), Paraguay (NE), Brazil, Uruguay, and Atlantic Ocean (E) Chile (W) The republic consists of 23 provinces and 1 federal district. The climate is warm temperate over the pampas, where rainfall occurs at all seasons, but diminishes towards the west. Arid climate in north and west with high summer temperature. Agriculture and animal husbandry form a major chunk of economy. Deposits of coal, lead, copper, zinc, gold are abundant. Major crops are, grains, maize, grapes, linseed, cigar, tobacco, etc.

In 1810 the population of Rio de la Plata rose against Spanish rule, and in 1816 Argentina proclaimed its independence. However, in 1853 stable government was established after civil wars and anarchy. In 20th century there have been a succession of military coups. Military coup took

place in 1930 and in 1943. In 1943 military coup Gen. Juan Domingo Peron won control. His populist regime was marked by some social reforms and nationalistic fervour. A civilian administration followed from 1955 to 1966. In 1973 elections the Peronists were the winners. Gen. Peron was elected President. Gen. J. Videla took control in 1976 military coup. On Dec. 1983 Argentina back to civilian rule. A new constitution was adopted in Aug. 1994. Since then Argentina has reinforced its commitment to democratic rule and restructured its economy by allowing greater market freedom.

## Bolivia

*Capital:* La Paz (administrative) and Sucre (judicial), *Area:* 1,098,581 Sq. Km, *Population:* 8 m. *Literacy:* 80%, *Religion:* Christianity, *Currency:* The Boliviano, *Estimated GDP:* 7,977, *GNP per capita:* 1,000, *People infected by AIDS:* 2,600, *Doctor per 1000 people:* 0.4

Republic of Bolivia is a landlocked state bounded by Brazil (N.E), Paraguay and Argentina (S), Chile and Peru (W). The varied geography produces different climates. The low-lying areas in the Amazon Basin are warm with heavy rainfall from Nov. to March, the Altiplano is generally dry between May and Nov. Agriculture, Minerals, Oil and natural gas, forestry and fisheries are supporting factor of the country's economy. 70 per cent of people depend upon agriculture. The chief crops are: Sugar, potatoes, coffee, corn, etc.

Bolivia was part of the Inca Empire until conquered by the Spanish in the 16th century. It became a part of the Buenos Aires in 1776. On 6 Aug 1825 Bolivia won independence and a republic was proclaimed. During first 154 years of self rule, Bolivia had 189 governments. In 1952 a revolution led by the MNR brought about agrarian reform and nationalisation of the tin mines. In 1971 instability in Bolivia reached a peak. The elections in 1980 was inconclusive and a military coup followed it. Civilian rule was restored in October 1982. Thereafter followed a period of economic reform. In 1997 Gen. Hugo Banzer Suarez elected president of Bolivia.



Pacific Ocean (W), Ecuador and Peru (SW), Brazil (SW). The climate includes equatorial and tropical conditions. Colombia has rich nickel deposits and natural gas fields. It is the world's single largest producer of emeralds and largest producer and exporter of mild coffee. Other products are bananas, flowers, cotton fibre, sugar, rice, tobacco, maize and wheat. Cement, textiles, motor vehicles, beverages, food products are important industry products

Columbees sighted what became Colombia in 1499. Spaniards fully conquered it 1539. In 1564 the Spanish Crown appointed a President. However, the constitution of 22 May 1858 changed New Granada into confederation of eight states, again in 1863 the country was renamed Estados Unidos de Colombia. The constitution of 5 Aug 1886 formed the Republic of Colombia and abolished the sovereignty of the states. The Conservatives and Liberals have alternated in power, both have faced rioting and civil war. The Conservatives and Liberals fought civil war from 1948-1957. In a plebiscite in 1957 the two political parties agreed to support a single presidential candidate to divide the government posts equally. This agreement was modified in 1974. Two Marxist guerrilla groups, FARC and ELN made a black history in 1996 by killing and violating human rights. On an average, 10 Colombians were killed everyday while one person disappeared every two days. Fresh hopes started in 1998 when Andres Pastrana elected President. In Jan. 1999 Colombia suffered its worst earthquake this century.

### Ecuador

*Capital:* Quito, *Area:* 283,561 Sq.Km, *Population:* 12.2 M. *Language:* Spanish, Quechuan, *Literacy:* 90%, *Religion:* Christianity, *Currency:* Sucre, *Estimated GDP:* 19,768, *GNP Per-capita:* 1,530, *People infected by AIDS:* 18,000, *Doctor per 1000 people:* 1.5

The Republic of Ecuador is bounded by Colombia (N), Peru (E and S), and the Pacific Ocean (W). The climate arise from equatorial, through warm temperate to mountain coalitions

according to altitude. Agriculture is the mainstay of the country's economy. Major export agricultural products are: bananas, sugarcane, African palm, Cacao., balsawood, rice and coffee. There are large deposits of copper, gold and zinc. Major industries are: food processing, wood products, textiles, sugar.

In 1532, Spaniards founded a colony in Ecuador. Spanish rule was first challenged in 1809 and in 1821. Ecuador won her independence. On 13 March 1830 Ecuador became a Republic. For 100 years thereafter, considerable difficulty was found in creating a stable regime as presidents and dictators followed one another. From 1963 to 1966 and from 1976 to 1979 military juntas ruled the country. The second military of above military juntas produced a new constitution in 1978 and it came into force on 10 August 1979. Civil unrest continued in the wake of economic reforms and attempts to combat political corruption. In July 1998 Jamil Mahuad of the centre-right Popular Democracy party was the presidential election amidst allegations of vote rigging and fraud.

### Guyana

*Capital:* Georgetown, *Area:* 214,969, Sq. Km, *Population:* 847,000. *Language:* English, Hindi, Urdu, *Literacy:* 98%, *Religion:* Christianity, Hinduism, Islam, *Currency:* Guyana Dollar, *GNP per capita:* 540, *People infected by AIDS:* 74,000, *Doctor per 1000 people:* 02.

The Republic of Guyana is situated on the north-east coast of Latin America on the Atlantic Ocean, with Suriname on the east, Venezuela on the West and Brazil on the South and west. It has a tropical climate with rainy season from April to July and Nov. to January. Agriculture is the backbone of the country's economy. Main agricultural products are: sugarcane, rice, coconuts and citrus. There are also considerable deposits of gold and diamonds. Mining and textiles are the main industries.

The Dutch West Indian company first settled in 1620, and in 1814 it was ceded to British and named British Guiana. African slaves were

transported to work the sugar plantations in 18th century and East Indians and Chinese introduced labourers in the 19th century. Guyana became an independent member of the Commonwealth in 1966 and on 3 Feb. 1970 Guyana became the world's first co-operative Republic. After two corrupt elections in 1980- and 1985 and desperate economic straits forced Guyana to seek outside help which came on condition of restoring free elections. Dr. Jagan returned to power in 1992 and after his death in March 1997 his widow, Janet Jagan, was sworn in as President on 24 Dec. 1997.

## Paraguay

*Capital:* Asuncion. *Area:* 406,752 Sq. Km, *Population:* 5.2 m, *Language:* Spanish, Guaraní, *Literacy:* 92%, *Religion:* Christianity, *Currency:* Guaraní, *GNP per capita:* 540, *People infected by AIDS:* 74,000, *Doctor per 1000 people:* 0.2.

The Republic of Paraguay is bounded by Bolivia (NW), Brazil (NE & E), and Argentina (S & SW). It has a tropical climate with abundant rainfall and only a short dry season from July to September. Majority of people (76%) depend upon agriculture and cattle breeding. Main crops are: maize, cotton, beans, tobacco and citrus fruits. Timber resources are abundant and chief export items are: beef, hard wood, hides and skins, cotton fibre and soya.

Paraguay was occupied by the Spanish in 1537. It gained its independence as the Republic of Paraguay on 14 May 1811. After that Paraguay was ruled by a succession of dictators. In 1844 a new constitution was adopted. During the devastating war (1865 to 1870) between Paraguay and a coalition of Argentina, Brazil and Uruguay, Paraguay lost 367,000 people. Further severe losses of people occurred during (1932-35) the war with Bolivia. Again a new constitution was adopted in Feb. 1968 and constitution was amended in 1977. During 1958 to 1988 Stroessner elected 7 times as president. After the assassination of Vice-president Luis María on 23 March 1999, Congress voted to impeach President Cubas who then resigned.

## Peru

*Capital:* Lima, *Area:* Population\* 24.8 m, *Language:* Spanish, Quechua, Aymara, *Literacy:* 89%, *Religion:* Christianity, *Currency:* New Sol. *Estimated GDP:* 63849, *GNP per capita:* 2450, *People infected by AIDS:* 72,000, *Doctor per 1000 people:* 1.0

The Republic of Peru is bounded by Ecuador and Colombia (N), Brazil and Bolivia (E), Chile (S), and the Pacific Ocean (W). There is a very wide variety of climate, ranging from equatorial desert. In coastal areas temperature varies very frequently. Agriculture is the backbone of economy. Main agricultural products are: Dool, cotton, sugar, coffee, rice, potatoes and beans. Fishing industry is well established. Main export items are cotton, fish, petroleum, copper and iron ore.

The Spaniards conquered the Incas of Peru in the 16th Century. Peru declared independence on July 28, 1821; but it gained freedom in 1824. In a disastrous war with Chile (1879-83), Peru lost some of her southern territory to Chile under the peace treaty. After Gen. N.L. Lopez's deposition in 1963, civilian rule followed to promote agrarian reforms. After that military coup occurred in 1968 & 1975. During 1978-79 a constituent assembly drew up a new constitution. The President F.B. Terry suspended the constitution on 6 April 1992 and dissolved Parliament. Again a new constitution was promulgated on 29 Dec. 1993.

## Suriname

*Capital:* Paramaribo, *Area:* 163,820 Sq. Km, *Population:* 442,000, *Language:* Dutch, English, Hindi, *Literacy:* 95%, *Religion:* Christianity, Hinduism, Islam, *Currency:* Suriname Guilder

The Republic of Suriname is located on the northern coast of South America. It is bounded by the Atlantic Ocean (N), French Guiana (E), Guyana (W) and Brazil (S). The climate is equatorial with uniformly high temperatures and rainfall. Country's economy is mainly depend upon export and import. Hindustanis managed much of the rice cultivation. It has a rich bauxite deposit.



The British established a colony in 1650. Suriname gained full independence on 25 November 1975 and was admitted to the UN on Dec 4, 1975. A National Military Council (NMC) was established with the result of a military coup. From 1980 to 1982, three military coups occurred. On Oct. 1987 a new constitution was approved by referendum. Though Suriname came to civilian rule established in 1988, again a military coup on December 24, 1990 deposed the government. A peace agreement between the govt. and rebel guerrilla groups reached in Aug. 1992. In the elections of May 1996, a National Democratic Party candidate, Jules Wijdenbosch, was elected president.

### Uruguay

*Capital:* Montevideo, *Area:* 176.215 Sq. Km, *Population:* 3.2 m, *Language:* Spanish, *Literacy:* 97%, *Religion:* Christianity, *Currency:* Peso, *Estimated GDP:* 19971, *GNP per capita:* 6180, *People infected by AIDS:* 5200, *Doctor per 1000 people:* 3.2.

The Oriental Republic of Uruguay is bounded by Brazil (NE), the Atlantic (SE), Rio de la Plata (S), and Argentina (W). It has a warm temperate climate with mild winters and warm summers. Uruguay's small economy benefits from a favourable climate for agriculture and substantial hydropower potential. The main products are. Wool, meat, hides, corn, citrus fruit, wheat, rice, tobacco.

In the American continent Uruguay was the last colony settled by Spain. Spanish viceroyalty declared independence of Uruguay on 25 August 1825. The first constitution was adopted on 18 July 1830 and since 1904 Uruguay has been unique in her constitutional innovations - all protected from the emergence of a dictatorship. Uruguay developed a welfare state towards the constitution was adopted in 1919, but abolished in 1933. During 1950's, following a series of strikes and riots, press was censored and again presidential govt. was restored in 1954. In February

12, 1985 Dr. Julio M. Sanguinetti became president and ordered the release of all political prisoners.

### Venezuela

*Capital:* Caracas, *Area:* . *Population:* 23. m, *Language:* Spanish, *Literacy:* 92%, *Religion:* Christianity, *Currency:* Bolivar, *Estimated GDP:* 87480, *GNP per capita:* 3500, *People infected by AIDS:* 82,000, *Doctor per 1000 people:* 1.6.

The Republic of Venezuela is bounded by the Caribbean Sea (N), the Atlantic and Guyana (E), Brazil (S) and Colombia (SW and W). The climate ranges from warm temperate to tropical. Temperatures vary little throughout the year and rainfall is plentiful. Oil is the mainstay of the country's economy and is rich in diamonds. Major agricultural products are: cocoa, coffee, bananas, maize, rice and sugar. Mineral resources, forests and fisheries contribute to strengthen the economy.

Columbus sighted Venezuela (Little Venice) in 1498. Until independence in 1821, Venezuela was a part of the Spanish colony of New Granada. It became a separate independent republic in 1830. Between 1830 to 1945 Venezuela was governed mainly by dictators. In 1961 a new constitution was promulgated with a procedure of presidential election in every five years, a national congress and state and municipal legislative assemblies. In 1983 elections Dr. Jaime Lusinchi elected president, but his regime was marred by crisis, social unrest and political corruption. In 1993 elections Dr. Caldera Rodriguez returned to the presidency. He took office in early stage of banking crisis, intervened to brought rapid discovery.

### South Atlantic Territories

Following are given the three islands of the South Atlantic Territories.

Falkland Islands: *Capital:* Stanley, *Area:* 4,700 Sq. Km. South Georgia Island: *Area:* 14,000 Sq. Km. South Sandwich Islands: *Area:* 130,000 Sq. Miles. ■■

# CHRONOLOGY OF 20TH CENTURY

## 1901

Jan : (1) The Commonwealth of Australia comes into being after more than 50 years of debate and false starts. (11) Russia and Britain agree on the partition of China. (22) The Queen Victoria, 81, dies after 63 years on the throne. (31) Anton Chekhov's play *Three Sisters* is performed for the first time. Feb : (3) Fukuzawa Yukichi, the Japanese Samurai, has died at the age of 66. (6) First public telephones appear at railway stations in Paris. March : (4) Inauguration of U.S. President McKinley. (25) The first Diesel motor goes on show in U.K. (31) The first Mercedes motor car is built in USA by Daimler. April : (30) James Gibb of U.K. started commercialisation of table tennis or 'ping-pong'. June : (24) The first Picasso show in Paris. July : (28) Dr. Robert Koch says bubonic plague may be due solely to rats. August : (9) Colombian troops invade Venezuela. (21) The Cadillac Motor company founded in Detroit. Sept: (4) In the Taff Vale railway case, the House of Lords rules that trade unions are liable for the financial losses of companies affected by industrial action. (7) The Boxer Protocol is signed by China and the foreign powers, ending the Boxer rebellion. (14) The U.S. President William McKinley dies after being shot by a Polish anarchist in Buffalo, he is succeeded by the Vice-president, Theodore Roosevelt. (25) Britain annexes the Asante kingdom as part of the Gold Coast (Ghana). October : (16) Russia Signs a new agreement with China over Manchuria; Booker T. Washington is the first Negro to dine at White House. (24) George Eastman sets up the Eastman Kodak camera company. Nov : (18) Britain and the USA sign the Hay-Pauncefote treaty, agreeing terms for a canal through Central America. Dec : (2) King Camp Gillette announces plans to market a disposable razor. (10) The first Nobel prizes were handed out in the fields of literature, chemistry, physics, medicine & peace in Oslo and Stockholm

(Sweden). (11) Guglielmo Marconi of Britain sends the first wireless message across the Atlantic. (21) Women are allowed to vote in local elections in Norway.

## 1902

Jan : (25) Russia abolishes the death penalty. (30) Britain and Japan sign a treaty agreeing to respect each other's interests in China & Korea. (31) First French soccer team plays in England. Feb : (19) In France Vaccination against small-pox becomes obligatory. (15) The underground railway opens in Berlin. (22) The Yellow Fever Commission, USA, announces that Yellow Fever is carried by Mosquitoes. (26) The former Liberal Prime Minister Lord Rosebery forms the Liberal League, splitting the Liberal Party. March: (26) The British colonial statesman Cecil Rhodes dies. April : (7) The Texas Oil Company, Texaco, is founded. (8) Russia signs a treaty with China over Manchuria, promising to withdraw its troops. (15) The head of the secret police of Russia, Sipyagin, killed by socialist revolutionaries. (16) 20,000 people gathered at a rally in Phoenix Park, Dublin, to protest at the British government's plans to impose tough new laws in Ireland. May : (8) The whole town of St. Pierre, Martinique, wipes out with an eruption of Mount Pele. (28) T. Alva Edison invents a new electrical storage battery. (29) The London School of Economics and Political Science opens. (31) The Boers (South Africa) surrender to the British and sign the peace of Vereeniging. June : (18) The satirist Samuel Butler dies. (23) The triple alliance of Germany, Australia and Italy is renewed for 12 years. (28) The USA pays \$ 40,000 to France for the rights to the Panama Canal. (29) The French Car Maker Marcel Renault wins the first Paris-Vienna motor race. July : (1) The Philippine Govt. Act, under which Philipinos will be ruled by a US presidential commission, passed. (3) Czar Nicholas II of

Russia offers talks with the people to avoid the spread of riots. (15) International Conference opens in Paris for the elimination of white slavery. Sept : (1) A state of emergency is declared in Dublin. (17) Martial law is lifted in Cape colony, South Africa. (22) Czar Nicholas, Finland, appoints a Russian governor general abolishing nominal Finnish autonomy. (29) The French writer Emile Zola dies. Oct : (6) A railway line between Bulawayo and Salisbury (Zimbabwe) is completed. (12) In Egypt 32,000 people are reported dead from cholera. Nov : (22) Friedrich Krupp, head of Germany's largest steel manufacturing firm and the richest man in the country, dies. (27) US President Roosevelt declares skin colour is no bar to public office. Dec : (1) Austria and Russia agree on joint supervision in Macedonia. (10) The Nile dam at Aswan is completed. (18) The New Education Act puts British elementary and secondary education in the hands of borough and county councils. (16) In Turkestan earthquake kills 4,000 people.

## 1903

Jan : (22) The US and Colombia sign a treaty to allow the construction of the Panama Canal. Feb : (13) Britain, Germany & Italy signed a treaty in Washington, DC, agreeing to lift the blockade of Venezuela. (23) Sultan Abdul Hamid II of Ottoman accepts Russian and Austrian proposals for reforms in Macedonia. March : (3) A bill passed in USA curbing immigration. (10) The Paris Academy of Medicine issues a report denouncing alcohol as harmful to health. (12) Czar Nicholas II of Russia issues a manifesto concerning important reforms & freedom of religion. (18) France dissolved the religious orders. April : (14) Bulgarians kill 165 in a Moslem Village in Macedonia. (16) Peasants in Bessarabia, Balkans, massacre thousands of Jews. May : (8) the French Painter Paul Gauguin dies. (21) The colonial secretary Joseph Chamberlain founds the Tariff League to promote a preferential trading system within U.K. (28) In Constantinople earthquake kills 2,000 people. June : (11) King Alexander & Queen Draga of Serbia are murdered by army officers and Prince Peter proclaimed king. (16) The socialists in Germany make large in-roads

in elections to the *reichstag*: Ford Motor Company formed. July : (11) World's first powerboat race takes place in Ireland. (19) Maurice Grain wins the first *Tour de France* bicycle race. (20) Pope Leo XIII dies in Rome. Aug : (4) Giuseppe Sarto, the patriarch of Venice, Rome, becomes Pope Pius X. (22) Lord Salisbury, three times Conservative prime Minister of Britain, dies. Sept : (21) The first Wild West movie, *Kit Carson*, opens in USA. (8) The Ottomans massacred 50,000 Bulgarians in the region of Monastir. Nov : (12) The French painter Camille Pissarro dies. (17) Vladimir Lenin splits the Social Democratic Labour party into *Bolsheviks* (majority) and *Mensheviks* (minority). Lenin leads the *Bolsheviks* and Yuly Martov the *Mensheviks*. Dec : (9) Norwegian parliament debarred women to vote. (10) Marie Curie, 33, has become the first female winner of the Nobel Prize (physics). She has won it jointly with her husband & a colleague for the discovery of radium. (17) Wilbur and Orville Wright fly a heavier than-air flying machine at Kitty Hawk, USA.

## 1904

Jan : (17) Anton Chekhov's play *The Cherry Orchard* receives its premiere in Moscow. Feb : (5) America ends its occupation of Cuba. (8) War breaks out between Japan and Russia with a Japanese attack on Port Arthur. March : (22) The *Daily Illustrated Mirror* carries the first colour photographs in a newspaper. (31) British forces under Macdonald kill 300 Tibetans attempting to halt a British Mission to Tibet. April : (1) First Motor car, produced by Henry Royce. (8) France and Britain sign an *entente cordiale* settling their colonial disputes in North Africa. (26) George Bernard Shaw's play *Candida* performed for the first time in Britain. May : (4) Charles Rolls and Henry Royce of Britain sign an agreement to build motor cars - *Rolls-Royce*. June : (15) 1,000 people die when *General Slocum*, the paddle-steamer catches fire in New York harbour; Britain and Brazil sign an arbitration convention settle the disputed border of British Guiana. (24) Japanese forces inflict a major defeat on the Russians at Telissu, China. (29) L. Doherty and D. Douglass win Wimbledon. July : (1) Third Summer

Olympic Games open at St. Louis, USA. (14) Paul Kruger, four times president of the Transvaal republic, dies in exile in Geneva. (15) Russian playwright Anton Chekhov dies. (21) 4,607 miles Trans-Siberian railway from Chelya-binsk to Vladivostok completed. Aug : (4) British troops arrive in Lhasa and Dalai Lama flees to Urga. Sept : (7) Britain signs treaty with Tibet by which Tibet agrees not to cede territory to any foreign country. (16) Italian aeronaut Spelterini flies over the Alps in a balloon. Oct : (3) France and Spain sign an agreement on Morocco. (27) Underground railway opens in New York city. Nov : Theodore Roosevelt, Republican, won the American Presidential election. Dec : (5) The Japanese destroy the Russian fleet at port Arthur, China. (10) The Russian physiologist Ivan Pavlov wins Nobel Prize for his work on digestive system. (13) London's first electric underground train goes into operation. (27) James Barrie's play *Peter Pan* opens.

## 1905

Jan : (1) The Trans-Siberian railway line officially opens in Russia. (2) At Port Arthur in China the Russians surrender to the Japanese. (22) More than 500 strikers shoot dead on "Bloody Sunday" by the czar's troops. Feb : (7) The states of Oklahoma and New Mexico are included to the union, USA. (17) G.D. Sergei, uncle of Czar Nicholas II, is assassinated in Moscow. March : (10) The Japanese defeat the Russians at Mukden, China. (24) The inventor of scientific novel, Jules Verne, dies in France. April : The French psychologist Alfred Binet invents intelligence. May : (1) Troops fire on May Day demonstrators in Warsaw. June : (7) Norway declares independence from Sweden. (13) Greek Premier Delyannis assassinated outside the parliament. July : (8) The crew of the battleship *Potemkin* surrender to the Rumanians in Russia. (9) Puccini's opera *Madame Butterfly* performed for the first time in London. (24) The treaty of Bjorkoe signed between German and Russia. Aug : (19) The Duma (a representative assembly) is established in Russia. (29) Russian and Japanese delegates agree on peace terms. Sept : (2) The Worst famine since 1891 is reported in Russia. (5) The

war fought in Korea and Manchuria between Russia and Japan ends with the signing of a peace treaty at Portsmouth, USA. (25) The terms of Norway's independence from Sweden are announced. Oct : (5) Wright brothers make the longest flight (38 min. 3 seconds). (13) Sir Henry Irving, actor, dies in London. (27) King Oscar II of Sweden formally abdicates the crown of Norway. (30) Czar announces an imperial manifesto towards semi-constitutional monarchy; Aspirin goes on sale in Britain. Nov : (1) Police close Bernard Shaw's new play *Mrs. Warren's Profession*, for portrayal of prostitution. (8) 1,000 Jews are killed in Russia. (12) Martial law declared in Poland. (28) Universal suffrage is granted in Vienna. Dec : (6) France separates Church and state. (6) Norwegian explorer Ronald Amundsen completes two and a half year journey across the American Arctic coast. (9) First performance of Strauss's opera *Salome*. Sigmund Freud's book *Three Essays on the Theory of Sexuality* drug into controversy.

## 1906

Feb : (7) The Liberals win a landslide victory in general election in Britain. (8) A typhoon kills over 10,000 people in Tahiti. (10) World's most powerful warship *HMS Dreadnought* launched in Britain. March : (7) Suffrage is extended to all tax-paying men and women over 24 in Finland. (8) A government publication in London states that the British empire occupies 1/5 land of the globe & a population of 400,000,000. (22) England win the first rugby international against France. April : (7) Eruption of Mount Vesuvius destroys the town of Ottaviano in Italy. (18) A major earthquake destroys most of the San Francisco city. May : (24) Czar concedes universal suffrage but denies amnesty to political leaders. (28) Norwegian playwright Henry Ibsen dies. June : (6) Italy re-affirms its alliance with German and Austro-Hungarian empires. (27) First circuit motor race held at Le Mans, France, won by the Hungarian. July : (7) Britain's first hot-air balloon race. (20) A treaty ends the war between Guatemala on one side and El Salvador and Honduras on the other. (21) Duma dissolved and Martial law declared in Russia. Aug : (24) Kidney transplants

are performed on cats and dogs in Toronto. Nov : (2) The Jewish revolutionary leader Leon Trotsky is exiled for life to Siberia. (15) World's biggest battleship the *Satsuma* is launched in Japn. Dec : (10) Nobel prize for peace to the US President-Roosevelt. (24) First radio broadcast programme in Canada.

## 1907

Jan : (1) Due to heavy rains and crop failure famine grip In China. (19) Mohammed Ali Mirza is crowned Shah of Persia. Feb : (26) President Roosevelt deployed the US army in charge of building the Panama Canal. March : (8) Women's Enfranchisement bill is defeated, Britain. (11) The Bulgarian premier Nicholas Petkov is assassinated. (15) First women candidates are elected to the Finland parliament. (22) Gandhi begins civil disobedience in South Africa. April : (3) The worst famine on record in Russia. (15) End of Russo-Japanese war under terms of the treaty of Portsmouth. May : (18) Mrs. Ramsay MacDonald chairs the Women's Labour League's first conference in London. (16) Nairobi is chosen as the capital of British East Africa. June : (10) Auguste and L.Lumiere invent a simple form of colour photography. (15) In the Hague the second International Peace Conference opens. (30) Split of the Church and state in Switzerland.

July : (19) The Korean emperor abdicates and is succeeded by the crown prince. Aug : (4) French troops arrive in Casablanca to avenge the murder of nine Europeans. (31) Britain Signed an agreement with Russia stating spheres of influence in Prussia, Tibet and Afghanistan. Sept : (7) The Hague Peace Conference rules that all powers must give notice of war. (10) New Zealand become a dominion. Oct : (18) A secret proposal for an international court of justice made public in the Hague. Nov : (29) Florence Nightingale -87- appointed to the Order of Merit by King Edward VII in London. Dec : (10) India born English author Rudyard Kipling wins the Nobel Prize for literature. Parliamentary suffrage is granted to women in a certain income bracket in Norway.

## 1908

Jan : (30) Mohandas Gandhi released from prison in Transvaal. Feb : (1) King Carlos and Crown

Prince Luiz are assassinated in Lisbon. (3) The dictator Joao Franco and his cabinet resign following king's assassination in Lisbon. (29) Solid helium produced by Dutch scientists. March : Final battles are fought in South West Africa between German and Nama. April : (12) Herbert Asquith becomes the Liberal Prime Minister, London May : (15) Unification of German Empire reaffirmed. (22) The Wright brothers patent their "Flying Machine" in Washington, Dc. June : (9) First visit of English king (Edward VII) to Russia. July : (24) The success of the Young Turk's revolution forces Sultan of Ottoman Empire Abdul Hamid II to restore constitution. Aug : (12) Ford's first Model T is produced in Detroit. Sept : (29) The international conference on Worker's protection in Switzerland bans night shift for children under 14. Oct : (5) Bulgaria becomes independent of the Ottomans (6) Crete becomes Independent from the Ottomans and formed union with Greece. (12) Russia persuades Britain to participate in a Congress on the Balkan situation. Nov : (3) William Howard is elected 27th president of the USA. (7) Prof. Lannelongue developed a new tuberculosis serum. (12) Andrew Fisher becomes the Labour prime minister, U.K. Dec : (2) Child emperor Puyi succeeds to the throne as Xuantong in China. (24) World's first international aviation show in Paris. (28) The worst even earthquake in Europe devastated Messina, Italy. (4) The American fighter Jack Johnson become the first Black to hold the world heavy weight championship in Sydney.

## 1909

Jan : (1) Over 70 people draw their first old-age pensions in London. (23) 7,000 mile telegraphic link between London & India. Feb : (24) Colour films are screened for the first time in Brighton. March : (8) Balkan crisis worsens as Austria rejects Russia's mediation. April : (6) Commander Robert E. Peary of the US Navy is the first person to reach North Pole. (19) The Ottoman empire recognises Bulgarian independence. (23) At least 30,000 Americans massacred by Moslem fanatics backed by the Sultan in Ottoman Empire. June : (12) Natal Votes for union with South Africa. July : (16) The 12-year-old crown prince, sultan Ahmed Mirza, proclaimed

sh of Persia. **Aug** : Czar Nicholas II visits his  
 cle king Edward VII of Britain. **Sept** : (9) Prof.  
 well Boston claims that there is oxygen on Mars.  
 ) The Spanish government announces that the  
 ors in Morocco have been defeated. **Oct** : (28)  
 e Brussels govt. announces major liberal reforms  
 the Congo. **Nov** : (29) Maxim Gorky is expelled  
 from the Revolutionary Party. **Dec** : (7) The South  
 Africa Act is given the royal assent as promised by  
 British at the end of the Boer War. (21) R.E.  
 ary's claim to reach North Pole confirmed.

**1910**  
**Jan** : (15) France reorganises French Congo  
 French Equatorial Africa. **Feb** : Dalai Lama flees  
 India as Lhasa invaded by Chinese troops. **March** :  
 ) China Abolished slavery (27) Mount Etna erupts  
 Italy. **April** : (5) French railways banned kissing  
 cause it delays trains. (14) House of Commons  
 votes to abolish the Lord's power to veto bills. **May** :  
 King George V succeeds the throne as Edward  
 dies, London. (20) Halley's comet passes within  
 million miles of the earth. **June** : (22) Dr. Paul  
 Ehrlich of Germany invented *Salvarsan* a new drug  
 syphilis. **July** : (1) The Union of South Africa  
 comes a dominion of the British Empire. **Aug** :  
 ) The Nursing pioneer Florence Nightingale dies  
 90 in London (22) Agnes Gaxha Bojaxhiu, later  
 known as Mother Teresa, born in Albania. **Sept** :  
 ) Marie Curie isolated the first pure sample of  
 radium. (15) Afrikaner nationalists wins the first  
 parliamentary elections in South Africa. **Oct** : (17)  
 the nobility abolished and republic established in  
 Portugal (30) Henri Dunant, founder of the Red  
 Cross, dies at 82 in Switzerland. **Nov** : (20) Leo  
 Tolstoy died at 82 after a secret flight from his fam-  
 ily, refusing to see his wife Sofya. **Dec** : (20) Liberals  
 and Tories tie in the general election, London.

**1911**  
**Jan** : (26) Richard Strauss's new opera *Der  
 Rosenkavalier* opens in Dresden, Germany. (27)  
 first wireless message from air. **Feb** : (6) MacDonal  
 elected chairman of the Labour Party. (18) World's  
 first official airmail flight between Bamrauli and Naini  
 India. **March** : (17) Anna Rogstad takes her seat  
 as Norway's first woman MP. **April** : (30) Portugal

allowed women to vote. **May** : (30) British writer  
 William S. Gilbert dies. **June** : (7) Earthquake rocks  
 Mexico City. **July** : (5) a revolt put down in the  
 capital of Lisbon. **Aug** : (3) Aeroplanes put to mili-  
 tary use near Tripoli, North Africa. (18) The Official  
 Secrets Bill gets royal assent. (22) Leonardo da  
 Vinci's master piece the *Mona Lisa* stolen from the  
 Louvre, Paris. **Sept** : (4) Flood in Yangzi river kills  
 100,000 people in China. (23) France and Germany  
 settle the Moroccan dispute. **Oct** : (2) Francisco  
 Modero is elected president of Mexico. (10) 2000  
 years old imperial rule ended in China. **Nov** : (2)  
 Martial law proclaimed in Egypt. (10) Imperial troops  
 massacre republicans at Nanjing, China. **Dec** : (12)  
 George V is crowned emperor of India. (29) Dr. Sun  
 Yat-Sen becomes provisional president of the Chi-  
 nese republic.

## 1912

**Jan** : (1) The republic of China is officially  
 proclaimed. (17) The British explorer Robert Scott  
 reaches the South Pole. **Feb** : (15) Yuan Shikai  
 takes over from Sun Yat-Sen as provincial presi-  
 dent of the republic of China. (28) Albert Berry of  
 USA makes the world's first parachute jump from  
 an aeroplane. **March** : (7) Henri Semiet makes the  
 first Paris-London non-stop flight. **April** : (13) The  
 Royal Flying Corps is set up in Britain. (15) The  
*Titanic* sank after hitting an iceberg killing more  
 than 1,500 people in North Atlantic. **May** : (5) The  
 first issue of the *Bolshevik* newspaper *Pravda* ap-  
 pears. **June** : (29) The fifth Olympic Games open  
 in Stockholm. **July** : (22) The British warships re-  
 call from the Mediterranean to the North Sea fear-  
 ing threat from German naval. **Aug** : (1) Air-mail  
 service begins between London & Paris. **Oct** : (8)  
 Montenegro declares war on the Ottoman empire  
 (23) the Greeks rout the Ottomans at Sarandaporo  
 Balkans. **Nov** : (5) Woodrow Wilson becomes the  
 US President. (28) Albania declares independence  
**Dec** : (20) Louis Botha forms a new cabinet in  
 South Africa.

## 1913

**Jan** : (23) Young Turks stage a *coup d'état*  
 overthrowing the Ottoman grand vizier, Kamil Pa-  
 sha. (31) The House of Lords rejects a bill for Irish

Home Rule. Feb : (2) The world's largest railway station, Grand Central Station, opens in New York City. (5) Dog's brain implanted in a man in Michigan. March : (12) Canberra becomes the federal capital of Australia. (18) King George of Greece assassinated by Alexander Schlans in Salonika. (20) Constantine, the eldest son of King George becomes king of Greece. April : (8) China's first parliament opens in Beijing. (14) Dr. Harry Plotz discovers a typhus vaccine. (26) The International Women's Peace Conference opens in the Hague. May : (30) Ottoman sign a peace treaty with Balkan League in London, ending the Balkan war. June : (6) A bill passed in Germany increasing the army expenditure. (8) Massive Olympic stadium opened in Berlin. (14) Miss Emily Davison, who died in Derby horse race, was given a martyr's funeral. (29) Norway grants equal electoral rights to women with men. July : (1) Greece and Serbia Declare war on Bulgaria. (8) China agrees to grant independence to Mongolia. (16) Robert Bridges becomes the poet Laureate, London. Aug : (10) The second Balkan war ends with the treaty of Bucharest. (23) Frenchman Ronald Garros completes the first flight over the Mediterranean. Oct : (7) Henry Ford launched a moving "assembly line" car of 250-foot-long, named as "Tin Lizzie". (10) The 51 miles Panama Canal opened. (11) Mexican president Huerta declares himself dictator. Dec : (1) Nobel Prize for literature has been awarded to Indian poet Rabindranath Tagore in Stockholm. (12) Stolen *Mona Lisa* recovered.

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## AROUND THE WORLD

May : (27) A US Navy NC4 seaplane completes the first-ever flight across Atlantic. June : (15) Completion of first non-stop flight across the Atlantic. (28) Germany and the Allies sign the Treaty of Versailles. July : A republic is declared & a new constitution adopted in Germany. Aug : (19) A bill disestablishing the Church in Wales, Britain, becomes law. (25) World's first scheduled International daily air service starts between London and Paris. Sept : (10) Austria signs the treaty of St. Germain with the Allies. Nov : (19) Britain grants Egypt a constitution. (19) The US Senate Votes against ratifying the Versailles Treaty. Dec : (22) British Prime Minister Lloyd George announces plans for the partition of Ireland.

### 1920

Jan : (26) The first meeting of the League of Nations is boycotted by the USA. March : (16) Allied troops occupy Istanbul. (28) Hungarian parliament is dissolved and M. Horthy becomes dictator. April : (6) French troops occupy Frankfurt. May : (22) Mexican president Carranza is murdered. (24) Seventh Olympic Games inaugurated at Antwerp. (28) War is declared between Poland and Russia. June : (1) Spanish Communist party is founded. (4) Hungary cuts to a quarter of her former size by the treaty of Trianon. (16) The League of Nations paramount court of Justice opens in the Hague. July (31) The Communist Party of Great Britain is founded. Aug : (16) Russian troops close on Warsaw. Sept : (1) France claims creation of Lebanon. Oct. (7) First 100 Women are admitted to Oxford University to study full degrees. Nov : (2) Warren Harding elected president of the America. (9) The film *Holy Bible* banned by Pope for its naked portrayal of Adam & Eve. Dec : (10) Woodrow Wilson is awarded the Nobel peace prize. (11) Martial law is declared in Ireland. (23) Partition of Ireland becomes law. London.

### 1921

Jan : (22) British tanks are sent into Bulin. Feb : (19) France signs a military and economic pact with Poland. (26) Soviet government signs treaties respecting territorial integrity of Afghanistan and Persia. March : (12) Lenin announces end of state

planning and free enterprise will be permitted. (17) Marie Stopes opens Britain's first birth-control clinic. April : (10) Sun Yat-sen is elected president of China. May : (8) Sweden abolished capital punishment. (11) Germany finally agrees to pay the war reparations demanded by the Allies. July : (2) US president Harding signs a peace decree ending the war with Germany and Austria. (10) Mongolia declares independence. (23) The first Congress of the Chinese Communist Party is held in Shanghai. Aug : (23) Emire Feisal is crowned king of Iraq. Sept : (22) Latvia, Lithuania and Estonia join the league of Nations. Nov : (22) Britain signs a treaty recognising the independence of Afghanistan. Dec (6) Anglo-Irish treaty signed. (31) Discovery of sulfin.

### 1922

Jan : (21) The *Dail Eireann* approves treaty with Britain setting up the Irish Free State. (22) Pope Benedict XV dies in Rome. Feb : (1) Achille Ratti is elected Pope as Pius XI. (15) Permanent International Court of Justice opens The Hague. March : (16) Egypt formally declares independence. June : (18) Scientists at Columbia University claim the sun produces a vitamin "D" for the body. July : (24) The League of Nations approves British mandate in Palestine & French mandate in Syria. Aug : (2) Alexander Graham Bell dies. (5) Einstein flees Germany. (30) Rumania, Yugoslavia and Czechoslovakia sign a mutual defence agreement establishing the "Little Entente". Sept : (22) Following the Greek defeat in Turkey, Constantinople is succeeded by George II. Oct : (1) Britain signs a treaty of alliance with Iraq. (18) British Broadcasting Company is formed. (30) Mussolini becomes dictator of Italy. Nov : (14) BBC makes its first regular news broadcast by wireless. (30) Ramsay MacDonald elected leader of the Labour Party. Dec : (5) The Irish Free State is officially proclaimed. (30) Soviet Russia is renamed the Union of Soviet Socialist Republic (USSR).

### 1923

Jan : (23) The Nationalist Socialist (Nazi) party holds its first rally in Munich, Germany. Feb (10) X-ray pioneer Roentgen dies. March : (9) L

from the Bolshevik leadership after stroke. (28) The Empire Stadium at Wembley, London stages its first sporting spectacular - the FA Cup Final. May : (8) England batsman Jack Hobbs celebrates his 100th century in first class cricket. The first 24-hour Le Mans Grand Prix is won by Frenchmen Lagache and Leonard. June : (7) Federation of British Industries is granted a royal charter. (15) Earthquake killed 20,000 in Peru. July : (18) The Matrimonial Causes Bill, allowing wives to divorce their husband for adultery, becomes law in Britain. (24) Turkey, Greece and the Allies sign the treaty of Lausanne. Sept : The Irish Free State is admitted to the League of Nations. Oct : (12) The Turkish Capital is moved from Istanbul to Ankara. (29) Mustafa Kemal proclaims Turkey a republic & himself its president. (25) First transatlantic wireless broadcast from SA is made. Dec : (10) Irish poet W.B. Yeats wins the Nobel prize for literature.

**4**

Jan : (21) Lenin, the founder of Soviet Russia, dies at 54 after a series of debilitating strokes. Ramsay MacDonald becomes first Labour Prime Minister of Great Britain. (26) Petrograd is renamed Leningrad, USSR. Feb : (1) Britain recognises the USSR. March : (15) The First Egyptian Parliament is opened. Imperial Airways of Britain begins operation. April : (1) Adolf Hitler is jailed for five years, Germany. (17) Mussolini's Fascists win a sweeping electoral victory in Italy. May : (6) The Berlin Parliament *Reichstag* votes in favour of the Dawes plan. July : (5) Olympic Games are held in Paris. Aug : (14) Scientists claim that Mars has the same atmosphere as Earth. (17) French Belgian troops withdraw from the Ruhr following the signature by Germany and the Allies. Oct : The Tories win a huge victory in a general election in Britain. Nov : (12) Mussolini opens Italy's first single chamber parliament. Dec : (20) Hitler is released on parole after serving just eight months of his term. (24) Albania is declared a republic.

**25**

Jan : (1) Norway's capital, Christiania, is renamed Oslo. (5) Mussolini forms a new cabinet.

(31) The first series of winter sports sanctioned by the International Olympic Committee finished in Chamonix, France. Feb : (14) Ban on the Nazi Party is lifted in Bavaria, Germany. March : (2) A new currency, *Schilling*, is introduced in Austria. (23) Tennessee (USA) makes it a crime to teach the theory of evolution in schools. April : (25) Paul von Hindenburg becomes Germany's first directly elected president. (28) Churchill puts Britain on the gold standard. May : (1) The Cyprus island becomes a British colony. (8) Afrikaans is made an official language of South African Union. June : (29) A law is passed in South Africa further excluding Blacks, Coloureds and Indians from all skilled jobs. July : (31) The British govt. agrees to pay a subsidy to coal-mine owners. Aug : (8) The first national congress of the Ku Klux Klan opens in Washington. (18) Jack Hobbs surpasses W.G. Grace's record of 126 centuries in top-class cricket. Oct : (26) Paul Painlevé forms a left-wing cabinet in Paris. Nov : (6) Voroshilov is chosen to succeed Trotsky as the head of Red Army, USSR. Dec : (10) Irish writer G.B. Shaw wins the Nobel Prize for literature.

**1926**

Jan : (6) The airline *Lufthansa* is founded in Germany. (8) Abdul Aziz ibn Saud proclaimed King of the Hejaz and proposes to rename Saudi Arabia. March : (13) Alan Cobman of Britain ends a 16,000 mile return flight from London to Cape Town. April : (7) Mussolini survives a third attempt on his life. (24) Germany signs a friendship treaty with USSR. May : (13) An international team of flyers completes the first-ever trip over the north pole in a airship. July : (9) General de Costa is overthrown by Gen Carmona in Portugal. Aug : (3) London's first traffic lights come into operation. Sept : (8) The League of Nations votes to admit Germany as a member. Oct : (23) Trotsky & Gregory are expelled from the Communist Party central committee. Dec : (15) The Roman *fascio* is adopted as the national emblem of Italy.

**1927**

Jan : (8) The first scheduled flight between London - Delhi. Feb : (6) 10 year old *Yakov* Mennuhin causes a sensation with his *concert*.

March : (21) The victorious Nationalist army enters Shanghai. April : (21) The National Museum of Wales opens. May : (9) The new Australian Parliament House is opened in Canberra. (20) Britain signs the treaty of Jeddah, recognising the independence of Saudi Arabia. June : (4) Ahmed Sukarno found the Indonesian Nationalist party. (30) The US Team wins the first Ryder cup professional golf tournament. July : (21) Prince Mihai, 5-years old, succeed king Ferdinand in Romaina. Sept : (15) Canada is elected to the League of Nations council. Oct : (1) The USSR signs a non-aggression pact with Persia. (15) Iraq's first oil strike is made at Kirkuk. (17) First Labour government elected in Norway. Nov : (8) Jules Rimet, the head of the International Football Association, announces the creation of a "World Cup".

## 1928

Jan : (16) Stalin has cracked down on his defeated political rivals and sent many of them into exile in Siberia. Feb : (15) The *Oxford English Dictionary* is completed after 70 years of work. March : (12) British colony Malta becomes a dominion. April : (9) Turkey abolished Islam as a state religion. May : (7) Women over 21 win equal suffrage in British elections. June : (28) China's old capital Beijing is changed to Beiping. July : (22) Japan breaks off relations with China. (28) 8th Olympic Games opens at Amsterdam. Aug : (27) Delegates of 15 nations sign the Kellogg-Briand pact in Paris outlawing war. Sept : (30) Alexander Fleming discovered Germ-Killing mould, London. Oct : (1) Stalin issues a five year economic plan. (6) A new Chinese constitution is promulgated. Dec : (20) Britain signs a tariff pact with China.

## 1929

Jan : (6) King Alexander is the new dictator of Yugoslavia. (23) The secret police, OGPU, of USSR arrest 400 Trotskyists for an alleged plot to start civil war. Feb : (11) Vatican state comes into being. March : (25) Mussolini's "single party" govt. claims it has won 99 percent of votes in general election in Italy. May : (16) The Academy of Motion Picture Arts and Sciences of USA gives its first awards. June : (7) Ramsay MacDonald forms

Britain's second Labour government. July : (11) Britain refused to give asylum to Trotsky. (17) Russia breaks relation with China. Sept : (9) Heavy fighting between Soviet & Chinese troops. Oct : (3) Yugoslavia is declared the official name of the Kingdom of Serbs, Croats & Slovenes. (24) New York stock exchange crashes. Dec : (31) Charles Best finds that heparin can stop the blood from clotting.

## 1930

Jan : (13) Two million died of starvation as famine threatens millions more in China. (31) The Five Power Naval Conference opens in London. Feb : (18) A new planet discovered beyond Neptune by US astronomer Clyde Tombaugh is named Pluto. (24) A report claims that 40 kulaks (rich peasant) are being murdered by Stalin's agent per day. March : (2) Controversial novelist D.H. Lawrence dies of tuberculosis at the age 44 in Italy. April : (21) The London Naval Treaty signed. May : (13) White women are given to vote in S. Africa. June : (30) Britain recognises Iraqi independence. July : (30) Uruguay win football's first World Cup. Aug : (18) The two halves of the new Sydney Harbour Bridge are joined. Sept : The Nazi leader Hitler is barred as an Austrian Citizen from taking his seat in the German Parliament reichstag. Oct : (16) The Maginot Line is to be built along France's frontier with Germany. Nov : (14) Japanese Prime Minister Hamaguchi is shot dead by a right-wing militant. Dec : (31) British physicist Paul Dirac's theory of particles and antiparticles proved.

## 1931

March : (3) "The Star Spangled Banner" becomes the US national anthem. April : (20) The Republican People's Party of Mustafa Kemal wins landslide victory in Turkey national elections. May : (1) President Hoover opens the 1,245 foot 125 floor Empire State Building in New York City. July : (13) All banks close until 5 August following the collapse of the Danatbank in Germany. Sept : (2) Gandhi demands Indian independence at a conference. (28) Denmark abandons the gold standard. Nov : (7) The Chinese Soviet Republic is established with Ruijin (Jiangxi) as its capital. Dec : (1) Japan abandons the gold standard. (21) Thorpe



**March :** (21) The victorious Nationalist army enters Shanghai. **April :** (21) The National Museum of Wales opens. **May :** (9) The new Australian Parliament House is opened in Canberra. (20) Britain signs the treaty of Jeddah, recognising the independence of Saudi Arabia. **June :** (4) Ahmed Sukarno found the Indonesian Nationalist party. (30) The US Teams wins the first Ryder cup professional golf tournament. **July :** (21) Prince Mihai, 5-years old, succeed king Ferdinand in Romania. **Sept :** (15) Canada is elected to the League of Nations council. **Oct :** (1) The USSR signs a non-aggression pact with Persia. (15) Iraq's first oil strike is made at Kirkuk. (17) First Labour government elected in Norway. **Nov :** (8) Jules Rimet, the head of the International Football Association, announces the creation of a "World Cup".

## 1928

**Jan :** (16) Stalin has cracked down on his defeated political rivals and sent many of them into exile in Siberia. **Feb :** (15) The *Oxford English Dictionary* is completed after 70 years of work. **March :** (12) British colony Malta becomes a dominion. **April :** (9) Turkey abolished Islam as a state religion. **May :** (7) Women over 21 win equal suffrage in British elections. **June :** (28) China's old capital Beijing is changed to Beiping. **July :** (22) Japan breaks off relations with China. (28) 8th Olympic Games opens at Amsterdam. **Aug :** (27) Delegates of 15 nations sign the Kellogg-Briand pact in Paris outlawing war. **Sept :** (30) Alexander Fleming discovered Germ-Killing mould, London. **Oct :** (1) Stalin issues a five year economic plan. (6) A new Chinese constitution is promulgated. **Dec :** (20) Britain signs a tariff pact with China.

## 1929

**Jan :** (6) King Alexander is the new dictator of Yugoslavia. (23) The secret police, OGPU, of USSR arrest 400 Trotskyists for an alleged plot to start civil war. **Feb :** (11) Vatican state comes into being. **March :** (25) Mussolini's "single party" govt. claims it has won 99 percent of votes in general election in Italy. **May :** (16) The Academy of Motion Picture Arts and Sciences of USA gives its first awards. **June :** (7) Ramsay MacDonald forms

Britain's second Labour government. **July :** (1) Britain refused to give asylum to Trotsky. (17) Russia breaks relation with China. **Sept :** (9) Fighting between Soviet & Chinese troops. **Oct :** (1) Yugoslavia is declared the official name of the Kingdom of Serbs, Croats & Slovenes. (24) New York stock exchange crashes. **Dec :** (31) Charles Bell finds that heparin can stop the blood from clotting.

## 1930

**Jan :** (13) Two million died of starvation a famine threatens millions more in China. (31) The Five Power Naval Conference opens in London. **Feb :** (18) A new planet discovered beyond Neptune by US astronomer Clyde Tombaugh is named Pluto. (24) A report claims that 40 kulaks (rich peasants) are being murdered by Stalin's agent per day. **March :** (2) Controversial novelist D.H. Lawrence dies of tuberculosis at the age 44 in Italy. **Apr :** (21) The London Naval Treaty signed. **May :** (1) White women are given to vote in S. Africa. **Jun :** (30) Britain recognises Iraqi independence. **Jul :** (30) Uruguay win football's first World Cup. **Aug :** (18) The two halves of the new Sydney Harbour Bridge are joined. **Sept :** The Nazi leader Hitler barred as an Austrian Citizen from taking his seat in the German Parliament reichstag. **Oct :** (16) The Maginot Line is to be built along France's frontier with Germany. **Nov :** (14) Japanese Prime Minister Hamaguchi is shot dead by a right-wing militiaman. **Dec :** (31) British physicist Paul Dirac's theory of particles and antiparticles proved.

## 1931

**March :** (3) "The Star Spangled Banner" becomes the US national anthem. **April :** (20) The Republican People's Party of Mustafa Kemal wins landslide victory in Turkey national elections. **May :** (1) President Hoover opens the 1,245 foot, 11th floor Empire State Building in New York City. **Jun :** (13) All banks close until 5 August following collapse of the Danatbank in Germany. **Sept :** (2) Gandhi demands Indian independence at a conference. (28) Denmark abandons the gold standard. **Nov :** (7) The Chinese Soviet Republic is established with Ruijin (Jiangxi) as its capital. **Dec :** (1) Japan abandons the gold standard. (21) Thon

Alva Edison, inventor of lightbulb, dies in New Jersey.

**1932**

Jan : (31) Japanese forces take Shanghai.  
Feb : (25) Hitler is granted German citizenship.  
March : (18) Sydney Harbour Bridge world's longest single span bridge opened. May : (6) French president Paul Doumer is assassinated. June : (25) India's cricketers begin their first test match at Lords against Douglas Jardine's England side. July : (2) Franklin D. Roosevelt wins the Democratic nomination for president, USA. Aug : (13) Hitler refuses to serve as vice-chancellor under Von Papen, Berlin. Sept : (4) World Peace Conference opens in Vienna. Oct : (16) Einstein puts the earth's age at ten billion years. Nov : (8) Roosevelt wins the American presidential election. Dec : (25) King George V of Britain makes the first royal Christmas Day broadcast to the empire.

**1933**

Jan : (30) Hitler becomes chancellor of Germany. Feb : (28) The Reichstag burns down, Berlin. March : (28) Hitler orders a boycott of Jews and Jewish shops. (29) The Commons (London) approves a plan for a federal constitution in India. June : (14) German Jews are banned from the 1936 Berlin Olympics. July : (15) The Rome pact is signed by Britain, France, Italy and Germany binding them to non-aggression. (25) Hitler's cabinet announces a sterilisation programme for disabled people. Oct : (14) The Nazi government announces its withdrawal from the League of Nations. Dec : (5) Fourteen years of prohibition come to an end in USA.

**1934**

Jan : (26) Germany signs a ten-year non-aggression pact with Poland. April : (25) Martial law is declared as the government resigns in Madrid. May : (13) Saudi Arabia signs a truce with Yemen in Jeddah. (19) Fascists seize power in a coup in Bulgaria. June : (8) Poland, Rumania and the USSR sign a pact guaranteeing their present frontiers. (27) End of the "Desert War" between Saudi Arabia & Yemen. Aug : (2) Hitler assumes the title "Führer" on the death of Hindenburg. Oct : (8) Martial law

declared in Spain. Dec : (1) Stalin's aide Sergei Kirov is murdered, USSR. (14) Turkey allowed women to vote. (27) Persia is renamed as Iran.

**1935**

Jan : (24) Mussolini dismisses the entire cabinet. (15) Mussolini unites Eritrea and Somaliland as Italian East Africa. March : (9) Nikita Khrushchev is elected chief of the Communist Party, USSR. April : (7) The Nazi party wins 60 percent of the vote in the free city. May : (2) France and the USSR sign a mutual defence pact in case of attack. (24) Pope Pius XI condemns the Nazi sterilisation of 55,244 "inferior" German citizens. Aug : (14) US president Roosevelt signs the Social Security Bill, introducing welfare for the old, sick and unemployed. (15) On Hitler's order the Swastika becomes the national flag of Germany. Sept : (1) Mexico announced women workers to vote. Nov : (18) League of Nations imposed economic sanctions on Italy.

**1936**

Jan : (18) Kipling dies. (21) Edward VIII is proclaimed king of Britain following the death of his father George V. Feb : (6) Hitler opens the 4th Winter Olympic Games. (29) US President Roosevelt signs the second neutrality bill banning loans to countries at war. March : (7) Paraguay sets up America's first Fascist regime. April : (28) 16 year-old Prince Farouk of Egypt succeeded his father. May : (5) Italian troops capture Ethiopian capital. June : (14) Maxim Gorky dies. July : (24) The Spanish government appeals for foreign help in the civil war. Aug : (1) Hitler opens the Berlin Olympics. (26) An Anglo-Egyptian treaty gives British control of the Suez Canal for 20 years. Oct : (11) 100,000 people barricade East London streets to prevent a march of Oswald Mosley's Fascists. (29) Army coup in Baghdad. Nov : (1) Mussolini announces the anti communist Axis with Germany. (3) Roosevelt elected president for the second time. (25) Germany & Japan sign a treaty to protect the world from the Bolshevik. Dec : (12) Abdul Karim of Britain proclaimed king as George VI.

**1937**

Jan : (17) The USSR



## AROUND THE WORLD

the republican rebels in Spain. Feb : (16) 'Nylon' is patented. April : (1) Burma is separated from India. May : (12) King George VI and Queen Elizabeth are crowned in London. June : (12) Eight top generals are executed as Stalin's purge extends to the Red Army. July : (7) The British government announces plans to partition of Palestine. Aug : (8) The Japanese occupy Beijing. (14) Japan bombed on Shanghai. Sept : (5) Nazi congress opens in Nuremberg. (28) The League of Nations condemns the Japanese invasion of China. Oct : (21) Sixty two are executed in Stalin's latest purges. Nov : (9) Japanese take Shanghai. Dec : (13) The Japanese marched into Nanjing and began brutality and mass destruction.

### 1938

Jan : (6) Sigmund Freud arrives in London fleeing from Italy. Feb : (24) First nylon based products - toothbrushes - appear in market. March : (13) Germany declared annexation of Austria. April : (7) The Nazis seize Rothschild's bank, Vienna. May : (20) The Prague govt. orders 400,000 troops to the Austro-German border. June : (8) The Japanese have been bombing Guangzhou, China, mercilessly for ten days. Oct : (19) London abandon plans for partition of Palestine. (21) Guangzhou falls to the Japanese. Dec : (6) France & Germany sign a pact on the inviolability of their present frontiers.

### 1939

Jan : (20) Fiq Farouk is declared the caliph (spiritual leader) of Islam. (28) W.B. Yeats dies in Ireland. Feb : (10) Pope Pius XI dies. March : (12) Pope Pius XII is consecrated. April : (6) Britain, France and Poland sign a mutual assistance pact. May : (22) Hitler and Mussolini sign a "pact of steel" - a military alliance. (26) The Military Training (Conscription) Act receives Royal Assent. Aug : (23)



Germany and USSR sign a non-aggression pact, known as Hitler-Stalin pact. Sept : (1) German troops invade Poland. (3) World War II declared. (4) Winston Churchill is first lord of the admiralty again. (5) Roosevelt declares US neutrality. (17)

Soviet troops invade Poland. Oct : (16) Britain battles ship Royal Oak sunk by a German torpedo. Hitler's month long peace offer to the Allies comes to an end. Nov : (13) The first bombs are dropped on British soil on the Shetlands. (30) Soviet planes bomb Helsinki & Viipuri.

### 1940

Feb : (7) Two IRA men are hanged. (13) biggest battle so far between the USSR & Finland. (22) New Five-year-old Dalai Lama is enthroned. March : (8) Martial law declared in Netherlands because of German threat. April : (2) Dutch troops are put on full alert along the German frontier. (10) Churchill becomes PM of Britain. June : Italy declares war on Britain & France. (16) Marshal Petain becomes French Prime Minister. July : (1) Germans take the Channel Islands. Lithuania, Latvia and Estonia vote to become part of the USSR. Aug : (19) British Somaliland falls to the Italians. (26) British planes bomb Berlin. Stalin's rival Leon Trotsky was assassinated in Mexico City on broad day by an ice-axe. Sept : (27) Japan sign a ten-year pact with Germany. Italy. Oct : (21) Hemingway's novel *For whom the Bell Tolls* published in New York City. Nov : Roosevelt re-elected president for a record time. (20) Hungary joins the Axis.

### 1941

Jan : (13) Irish author James Joyce dies in Zurich. Feb : (14) Bulgaria accepts German occupation. (17) Bulgaria and Turkey sign a non-aggression pact. March : (1) Bulgaria joins the Axis. (25) Belgrade signs pact with the Axis. April : Stalin signs a neutrality pact with Japan. July : (13) Britain & the USSR conclude a mutual assistance pact. Sept : (16) The Shah of Iran abdicates. Dec : (7) The Japanese bomb the American battleship Pearl Harbor. (11) Hitler and Mussolini declare war on the US. (25) Hong Kong surrenders to Japan.

### 1942

Jan : (2) Japanese troops take Manila. Feb : (15) Singapore surrenders to the Japanese. March : (29) The British reveal a plan for Indian independence after the war. April : (18) US planes attack Tokyo. June : (1) Mexico declares war on the Axis.

(29) Germans launch an offensive near South of Moscow. Aug : (22) Brazil declares war on Germany & Italy. Sept : (10) The RAF drop 100,000 bombs on Dusseldorf, Germany, in an hour. Nov : (3) Bosnian capital of Bihacs falls to Tito's partisans. (26) Soviet troops smash through German lines in Stalingrad.

## 1943

Jan : (14) Churchill and Roosevelt met in Casablanca. (23) The Allies take Tripoli (31) The Germans surrender Stalingrad. April : (7) The Keynes Plan for post-war economic recovery is published in Britain. May : (18) A state of emergency is declared in the Ruhr, Germany. July : (13) Germany loses the greatest tank battle in history to the USSR. (25) Mussolini overthrows from power. Aug : (28) King Boris III of Bulgaria dies from an assassin's bullet. Sept : (3) Italy signs a secret armistice with the Allies. (10) German troops occupy Rome. Nov : (28) Churchill, Roosevelt and Stalin arrive in Tehran for meeting.

## 1944

Jan : (1) DNA discovered by Oswald T. Avery, New York. (4) Hitler orders the mobilisation of all children over the age of ten. (29) The world's biggest worship, the USS *Missouri* is launched in the Pacific. March : (18) The Germans begin to occupy the country. April : (7) Hitler suspends all laws and makes Goebbels dictator of Berlin. May : (23) The Allies begin an offensive from Anzio. June : (4) The Allies take Rome. (31) The Allies drive the Germans from Normandy. Sept : (6) Bulgaria declares war on Germany. Oct : (20) The Red Army take Belgrade. Nov : (7) Roosevelt wins fourth terms in office. Dec : (10) De Gaulle and Stalin sign a treaty of alliance.

## 1945

Jan : (21) Hungary declare war on Germany. March : (11) Cambodia declares its independence. April : (28) Mussolini is executed. (30) Hitler shoots himself. June : (26) 50 nations sign the World Security charter to establish UNO. July : (16) The first atomic bomb tests take place in the New Mexico desert. (26) Labour party wins a landslide election

victory in Britain. Aug : (6) Atomic bomb, Little Boy, a Uranium-235 fission bomb destroys the Hiroshima city. (8) Stalin declares war on Japan. (9) Atomic bomb, Fat Man, a 22-kiloton plutonium-239, destroyed the Nagasaki. (14) Japan surrenders to the Allies. Sept : (1) British troops take control of Hong Kong. (8) The USA and the USSR divide Korea. Nov : (12) Marshal Tito's National Front secures an overwhelming majority in a general election in Yugoslavia. Dec : (27) The International Monetary Fund (IMF) and the World Bank Founded.

## 1946

Jan : (11) Albania proclaimed the communist people's republic. (30) Inaugural session of the UN General Assembly in London. Feb : (1) Hungary sets up its republic. (14) IBM invents the first electronic calculator. March : (5) Churchill warns of "iron curtain" across Europe. April : (12) Syria achieves independence. May : (25) Jordan created Kingdom. June : (10) Republic declared in Italy. Aug : (19) Civil war resumes in China. Oct : (16) Ten top Nazis executed at Nuremberg, Germany. Nov : (3) Japan introduced its new constitution.

## 1947

Feb : (10) Italy, Rumania, Hungary, Bulgaria and Finland sign peace treaties. March : (25) Indonesian independence recognised. (26) Truman doctrine proclaimed. June : (3) Plans announced for partition of India and Pakistan. (5) Marshall Plan announced in the USA for European recovery. July : (19) Burmese Prime Minister U Aung San assassinated. Nov : (30) UN votes to partition Palestine. Dec : (22) Italy introduced its new constitution.

## 1948

Jan : (4) The Union of Burma becomes independent republic. (30) Gandhi assassinated. Feb : (4) Ceylon becomes self governing Commonwealth state. March : (17) France, Benelux and Britain sign 50-year pact. April : (16) The Organisation for Economic Cooperation (OEC) set up. May : (14) New State of Israel created. June : (30) Western Allies start a lift to beat Soviet blockade. Aug : (15) South Korea proclaims new republic. Sept : (19)

## AROUND THE WORLD

North Korea proclaimed independent communist republic. Nov.: Truman elected the US president. Dec.: The General Assembly adopts the Universal Declaration of Human rights.

### 1949

Jan: (1) India & Pakistan agree truce in war over Kashmir. April: (4) NATO founded, USA. (18) The Republic of Ireland created. (27) The republic of India created. May: (12) Blockade ends in Berlin. (23) Federal Republic (W. Germany) established. July: Truce ends war between Israel and Arab League. Sept.: USSR tested her first Atomic bomb. Oct.: (1) Mao proclaims communist people's republic, China. (12) Democratic Republic (East Germany) formed. Dec.: (8) Independence of Indonesia.

### 1950

Feb: (9) Joseph McCarthy launches anti-communist crusade in America. (15) The USSR and China sign 30-year alliance. March: (1) Chiang Kalshek proclaimed president of nationalist China. April: (24) King Abdullah annexes Arab Palestine. May: (1) The Musical South Pacific wins 1950 Pulitzer prize. June: (25) North Koreans invade South Korea. Aug: (27) First overseas TV broadcast by the BBC. Oct.: (6) World's longest pipeline of 1958 miles between Gulf to Sidom oil field is completed. Nov.: (28) Chinese enter war with Korea. Dec.: (25) Dalai Lama flees to Tibet in wake of Chinese invasion.

### 1951

Jan: (28) USA tested Atomic bomb in Nevada desert. March: (30) Rosenbergs sentenced to death for atom spies in America. April: (18) European Coal and Steel Treaty signed. May: (27) China allowed religious freedom to Tibet. July: (20) King Abdullah of Jordan shot dead. Sept.: (8) Japan signs Second World War peace treaty. Oct.: (19) British troops seize Suez Canal after Egypt breach the 1935 treaty. Dec.: (24) Independent kingdom of Libya established.

### 1952

Feb: (8) King George VI dies, Elizabeth II succeeds. March: (10) Batista overthrows president

and seizes power in Cuba. May: (27) European Defence Community created. June: (1) Soviet "iron curtain" isolates West Berlin. Sept.: (15) Eritrea united with Ethiopia. Oct.: (3) First British Atom Bomb test.

### 1953

Jan: (1) China begins her first five year plan. March: (5) Stalin dies in USSR. May: (29) Hillary and Tensing climb Mount Everest. June: (17) Soviet tanks crash anti-communist uprising in East Berlin. July: (27) Korea signed Armistice. Aug.: (22) Shah restored after Military coup in Iran. Nov.: (11) The polio virus identified.

### 1954

April: (24) Security forces launch big drive against Mau Mau in Kenya. July: (20) Cambodian Independence from France confirmed. (21) Armistice divides Vietnam into North and South. Geneva. Aug.: (30) France rejects European Defence Community. Oct.: (19) Britain agrees to withdraw troops from Suez Canal. (21) International agreement concluded on Iranian oil. (23) NATO votes to end occupation of West Germany. Nov.: (29) US National Cancer Institute claims a definite link between cancer and cigarette smoking.

### 1955

Feb: (18) Turkey and Iraq sign defensive pact. (19) Compulsory military service introduced in China. April: Bandung conference of Asian and African states in Java. May: (14) Warsaw Pact signed. (15) Sovereignty in Austria restored. Nov.: (28) State of Emergency declared to fight EOKA terrorism in Cyprus. Dec.: (3) Britain and Egypt sign an agreement granting independence to Sudan.

### 1956

Jan: (1) Independence of Sudan. March: (18) Khrushchev denounces Stalin in USSR. (23) Pakistan introduced new constitution. Independence of Morocco and Tunisia recognised. July: (26) Egyptian president Nasser nationalises Suez Canal. Oct.: (31) Anglo-French forces bombard Suez Canal. Nov.: (5) Anti-communist revolution crushed by Soviet tanks in Hungary. Dec.: (3) British and

France announce their imminent withdrawal from Suez.

## 1957

Jan : (10) MacMillan becomes the PM of Britain. March : (6) Independence of Ghana. June : (17) Diefenbaker forms Conservative cabinet in Canada. July : (3) Khrushchev foils Molotov coup, USSR. (25) Tunisia declared republic. Sept : (25) US troops set to Little Rock. Oct : (4) The USSR launched Sputnik I. Dec : (6) First US attempt to launch a satellite fails.

## 1958

Feb : (1) First US satellite launched successfully; Egypt and Syria form United Arab Republic. March : (27) Khrushchev becomes supreme Soviet leader. May : (13) French nationalists launch rebellion in Algeria. July : (14) Iraq proclaimed republic. Sept : (9) Notting Hill riots in London. Oct : (28) Roncalli succeeds Pius XII as Pope John XXIII. Dec : (21) De Gaulle elected first president of Fifth Republic, France.

## 1959

Jan : (3) Fidel Castro seizes power in Cuba; Alaska become 49th state of the USA. Feb : (19) Britain, Greece and Turkey agree plan for independence of Cyprus. March : Dalai Lama flees to Tibet. June : (3) New Constitution created in Singapore. Aug : (21) Hawaii become 50th state of the USA. Nov : (20) European Free Trade Association formed in Stockholm. Dec : (14) Makarios elected president of Cyprus.

## 1960

Feb : (3) British PM MacMillan makes "Wind of change" speech at Cape Town. March : (21) Police kill 56 black Africans at Sharpeville. May : (1) USSR shot down US reconnaissance plane-U-2. June : (30) Belgian Congo becomes independent. July : (21) Sirimavo Bandaranaike of Ceylon is world's first women Prime Minister. Aug : (16) Cyprus declared republic. Oct : (1) Independence of Nigeria. Nov : (9) J.F. Kennedy becomes president of America.

## 1961

Jan : (30) Contraceptive pill goes on sale in Britain. April : (12) Yuri Gagarin of USSR becomes first man in space. (26) Army revolt in Algeria collapsed. May : (31) South Africa declared republic and leaves Commonwealth. Aug : Berlin Wall rises. Sept : (13) The UN forces crush Katangan rebels in Congo. (18) UN Secretary General D. Hammarskjöld dies in air crash. Nov : (3) U. Thant of Burma becomes UN Secretary General. (10) Stalingrad is renamed Volgograd.

## 1962

Feb : (20) John Glenn of USA completes first orbit of the earth. July : (3) France recognises Algerian Independence. Aug : Jamaica, Trinidad and Tobago win independence. Sept : (19) China begins attack on India's northern region. Oct : (9) Uganda win Independence. (28) Cuban Missile Crisis ends with Khrushchev removing the missiles; Nuclear war reverted.

## 1963

Jan : (14) De Gaulle vetoes Britain's entry to EEC. (15) Congo surrender to the UN forces. March : (29) Central African Federation collapses. June : (16) Valentina Tereshkova of USSR is the first woman in space. Aug : (8) Britain, USSR and USA sign nuclear test-ban treaty. Oct : (1) Republic of Nigeria set up. Nov : (22) J.F. Kennedy shot dead in Dallas, USA; Johnson becomes the president. Dec : (12) Independence of Kenya

## 1964

May : (27) Nehru dies. June : (14) Mandela jailed for life, S. Africa. July : (2) USA passed Civil Rights Act. Aug : (4) USA starts retaliatory bombing in North Vietnam. Oct : (15) Brezhnev succeeded Khrushchev, USSR. (16) China becomes member of Nuclear Club. (24) Independence of

## 1965

Jan : (24) Churchill dies. Luther King leads civil rights march. Broke out between India and Pakistan. Edward White of USA

## AROUND THE WORLD

Singapore secedes from Malaysia. Sept : (22) India and Pakistan halt undeclared war. Dec : (10) The UNICEF receives Nobel Peace Prize.

### 1966

Jan : (11) Tashkent pact signed. April : (8) Brezhnev becomes general secretary, USSR. Aug : (11) Malaysia and Indonesia end three-year war. Sept : (6) South African Prime Minister Verwoerd assassinated. Nov : (27) Soviet Communist Party denounces Chinese leadership. Dec : (16) Walt Disney dies.

### 1967

June : (10) Israel won six-day war against Arabs. Sept : (8) Uganda declared republic. Nov : (30) British withdrew from South Yemen and people's republic formed. Dec : (3) Dr. Barnard performs first heart transplant in Cape Town. (17) Gorton succeeds prime minister of Australia.

### 1968

April : (9) Martin Luther King assassinated in Memphis, US. (20) Trudeau become PM of Canada. May : 'Month of the barricades' formed in France by students and workers in a strike. June : (6) Robert Kennedy fatally wounded in Los Angeles.

Feb : (3) Yassir Arafat becomes PLO leader. March : (7) Golda Meir becomes PM of Israel. June : (15) Pompidou succeeds De Gaulle as president of France. (30) Red Cross banned relief flights to Nigeria. July : (21) US astronauts Armstrong and Aldrin make first moon walk. Oct : (15) Millions protest at US involvement in Vietnam War. (21) Brandt becomes chancellor of West Germany.

### 1970

Jan : (12) Biafra surrenders to the federal government in Nigeria. March : (18) Sihanouk ousted by Lon Nol in army coup in Cambodia. Aug : (12) USSR and West Germany sign friendship treaty in Moscow. Sept : (27) PLO agrees to evacuate strongholds in Jordan. (28) Nasser dies. Oct : (10) Independence of Fiji. Nov : (9) De Gaulle dies in France.

### 1971

Jan : (25) Amin deposes Obote and seizes power in Uganda. March : (26) Civil war starts in Pakistan over independence of Bangladesh; Mujibur Rahman declares independence of Bangladesh. July : (30) Apollo-15 landed in moon. Dec : (2) UAE formed. (17) Independence of Bangladesh. (20) Zulfikar Ali Bhutto succeeds Yahya Khan as the president of Pakistan. (21) Waldheim appointed UN Secretary General.

### 1972

Jan : (22) Britain, Norway, Denmark, Ireland sign EEC treaty in Brussels. Feb : (21) US President Richard Nixon visits China. March : (25) Direct rule from Westminster, Britain, imposed upon Northern Ireland. May : (22) Ceylon becomes republic as Sri Lanka. (29) SALT I treaty signed between Nixon and Brezhnev. Aug : (11) US troops withdrawn from South Vietnam. Nov : (7) Nixon re-elected president of America. Dec : (30) US halted intensive bombing of Hanoi.

### 1973

Jan : (1) Britain, Denmark and Ireland join EEC. (23) Vietnam peace agreement signed in Paris. Oct : (6) Egypt launched Yom Kippur War. Nov : (11) Egypt and Israel sign ceasefire agreement. Dec : (23) OPEC quadruples price of oil.

### 1974

May : (16) Schmidt replaces Brandt as chancellor of West Germany. Aug : (21) Nixon resigns over Watergate scandal; Ford becomes president (USA). Oct : (11) Labour party wins election with razor thin majority in Britain.

### 1975

April : (17) Phnom Penh falls to Khmer Rouge in Cambodia. Aug : (1) Human rights pact signed in Helsinki. Civil war breaks out in Lebanon. Nov : (22) Monarchy restored in Spain following the death of Franco. (24) Civil war starts in Angola.

### 1976

May : (16) Civil War collapses in Lebanon. June : (11) Moscow declaration of friendship and

cooperation signed between India & USSR. Sept : (9) Mao Zedong dies, China. Nov : (15) Paré Québécois wins Quebec provincial election.

## 1977

June : (15) Suarez wins first general election since 1936 in Spain. Brezhnev becomes president of USSR. July : (5) Bhutto overthrown and arrested by Zia. Aug : (3) Cyprus president A. Makarios dies. Nov : (19) Egyptian president Sadat makes historic visit to Israel.

## 1978

April : (27) Afghanistan president Daoud killed in army coup. May : (9) Former PM Moro killed by Red Brigades. July : (26) World's first test-tube baby born. Sept : (8) Martial law declared, Iran. (18) Camp David agreement signed. (30) Pope John Paul dies after a month in office. (16) Karol Wojtyła becomes first non-Italian pope as John Paul II. Dec : (10) Begin and Sadat share Nobel peace prize (for their Camp David agreement).

## 1979

Jan : (8) Vietnamese take Phnom Penh. Feb : (1) Ayatollah Khomeini returns following exile of Shah. March : Israel and Egypt sign peace treaty. April : Vietnamese reveal Pol Pot's mass graves. (4) Bhutto executed. May : (4) Margaret Thatcher becomes PM of Britain. Aug : (27) Lord Mountbatten killed by IRA bomb in Ireland. Dec : (27) Soviet troops invade Afghanistan.

## 1980

Jan : (25) Bani-Sadr becomes president of Iran. April : (18) Zimbabwe becomes independent with Mugabe as its PM. May : (4) Marshal Tito dies. (20) Quebec votes against leaving Canada. Sept : (7) Zhao Ziyang becomes PM of China. Oct : (4) Iraq-Iran war starts. Nov : (4) Reagan becomes the President of America.

## 1981

Jan : (21) Iran freed US hostages. (25) "Gang of Four", including Mao's widow, sentenced to death in China. Feb : (23) Army coup fails in Spain. March : (30) Reagan survives assassination attempt. April :

(12) USA launched first space shuttle. May : (10) Mitterrand elected president of France. (13) Pope John Paul II survives assassination attempt. Nov : (10) Mubarak becomes president of Egypt. Dec : (10) Martial law declared in Poland.

## 1982

April : (25) Israel withdraws from Sinai. June : (14) Argentinians surrender to British. Sept : (17) massacres in Palestinian refugee camps. Oct : (1) Helmut Kohl becomes chancellor of West Germany. Nov : (12) Andropov succeeds Brezhnev in USSR.

## 1983

June : (9) Three freedom fighters hanged in South Africa. (26) Arafat expelled. July : Racial violence in Sri Lanka. Sept : (1) USSR shot down Korean airliner killing 269. Oct : (22) Anti-nuclear protests in several capitals. (26) US troops invade Grenada. Dec : (20) PLO evacuates Tripoli. (28) USA leaves UNESCO. (31) Independence of Brunei.

## 1984

Feb : Western peace-keeping force starts withdrawal from Lebanon. April : (23) AIDS virus found in USA. Sept : (4) Mulroney becomes PM of Canada. Oct : (12) IRA bomb at Tory conference in Britain. Western countries start airlift to relieve famine in Ethiopia. (31) Indira Gandhi assassinated. Dec : (19) Hong Kong treaty with China.

## 1985

March : (11) Gorbachev becomes president of the USSR. May : (29) Heysel disaster in Belgium. July : (20) State of emergency imposed in 36 areas of South Africa. Nov : (13) Volcanic eruption kills 20,000 in Columbia. USA-USSR summit in Geneva.

## 1986

Jan : (28) USA space shuttle explodes on take-off. Feb : (7) "Baby Doc" ousted in Haiti. (20) Soviet Union's Mir space station launched. April : (30) Chernobyl fire, USSR. June : (6) Waldheim elected president of Austria. (12) Nationwide state of emergency in South Africa. Oct : (12) 1800 die

in EL Salvad for earthquake.

## 1987

Jan : Gorbachev launches *perestroika* and *glasnost*. June : (12) Thatcher re-elected prime minister for third time, Britain. July : (21) UN Security Council passes a resolution demanding an end to 7 year-old Iraq-Iran war. Oct : (19) World stock markets crash. Dec : (8) Gorbachev and Regan sign INF treaty.

## 1988

Jan : Palestinian uprising intensifies. March : (2) USSR sent army to quell unrest in Azerbaijan. May : (29) Gorbachev-Regan summit at Kremlin begins. Aug : (17) Gen. Zia-ul-Haq killed in air crash, Pakistan. (20) Truce between Iran and Iraq halts Iran-Iraq eight-year war. Nov : (8) Bush becomes president of the USA. (30) Benazir Bhutto becomes PM of Pakistan. Dec : (10) Gorbachev cuts Red Army by ten per cent. (31) India and Pakistan sign nuclear treaty in Islamabad.

## 1989

Jan : (2) R. Premadasa becomes president of Sri Lanka. April : (15) More than 100 killed in soccer match stampede at Hillsborough. May : (4) Student demonstration in Beijing demanding democracy Juno. (3) Ayatollah Khomeini of Iran dies. (4) Chinese soldiers storm Tiananmen Square in Beijing to crash month long Pro-democracy student demonstration Sept (1) Sam Nujoma returns to Namibia after 30 years in exile. Oct (5) Dalai Lama wins Nobel prize for peace

## 1990

Feb : (2) Ban on African National Congress (ANC) lifted. (11) Nelson Mandela freed after 28 years in prison. April (29) Boris Yeltsin elected president of Russian Federation June (21) 40,000 die in earthquake in Iran July (1) Unification West and East Germany. 1,500 pilgrims die in a stampede in the tunnel, near Mecca Aug (2) Kuwait captured by Iraq. Sept : (24) Duma votes for free market economy. Oct : (3) Gorbachev wins Nobel peace prize. Nov : (19) End of Cold War. (22) John Major becomes PM of Britain.

## 1991

Jan : (17) War broke out in the Gulf. Feb : (3) Missile attack on Tel Aviv. (26) Kuwait fully liberated, Khaleda Zia becomes first woman PM of Bangladesh. April : (11) End of Gulf war. May : (1) More than one lakh die in Bangladesh cyclonic storm. Sept : (5) Dis-unification of USSR. Oct : (20) Cambodia's Prince Sihanuk restored as the head of state. Dec : (15) Satyajit Ray awarded special Oscar. (25) Supreme Soviet dissolved and Gorbachev steps down.

## 1992

Jan : (1) Boutros Boutros Ghali becomes UN Sec. General. Feb : (3) H.M. Ershad sentenced three year jail. June : (1) Netherlands legalises prostitution. Nov : (13) Earthquake kills 2500 people in Indonesia.

## 1993

Jan : (1) Czech and Slovak republics come into existence. (20) Bill Clinton sworn in as 42nd US president. Feb : (26) Explosion in New York's World Trade Centre. March : (5) Ben Johnson banned for life for using steroids. (27) Jiang Zemin becomes fifth president of China. April : (11) SAARC summit in Dhaka adopts SAPTA. May : (1) Sri Lankan president. R. Premadasa killed by a suicide bomber. (28) First democratic election in Cambodia. Nov : (1) Maastricht Treaty comes into operation. Dec : (8) Hubble space telescope repaired by space shuttle Endeavour.

## 1994

Jan : (14) Russia and America sign a treaty not to attack each others nuclear weapons. Feb : (2) First UN High Commissioner for Human Rights - Jose A. Lasso. April : (7) Presidents of Rwanda and Burundi are assassinated. (15) Final draft of GATT negotiations at Marrakesh. (30) ANC wins election in S. Africa ending 30 years of apartheid May : (11) 27 years of Israeli occupation of Gaza ends (18) Jacqueline Kennedy Onassis dies. July : (5) Self-government set up in Palestine. Oct : (2) 12th Asian Games open in Hiroshima. (14) Nobel Peace Prize goes to Arafat, Rabin & Peres jointly

**Nov :** (12) Chandrika Kumaratunga becomes president of Sri Lanka.

## 1995

**Jan :** (1) WTO comes into operation. **April :** (19) Oklahoma city's federal building bombed. **May :** (8) Jacques Chirac becomes French President. (24) Thousands die in Zaire of Ebola virus attack. **Sept :** (24) Agreement signed to expand Palestinian self rule to West Bank. **Nov :** (3) Typhoon Angela in Philippines.

## 1996

**Jan :** (8) Mitterand dies. **Feb :** (17) IBM Computer Deep Blue surrender to Gary Kasparov in chess. (21) 'Mad cow disease' cause havoc in Europe. **April :** (3) Slaughter of 4.7 million British cows for 'Mad cow disease'. **May :** (5) Burundi army accused of killing 235 Hutu civilians. (14) Tornado in Bangladesh, killing over 700. **July :** (19) Centennial Olympic Games begin at Atlanta. **Aug :** (26) Former president of South Korea, Chun Doo Hwan, sentenced to death. **Sept :** (24) USA signs CTBT. (27) Taliban captures Kabul and hangs Najibullah.

## 1997

**Jan :** (25) Martina Hingis becomes youngest Grand Slam champion. **Feb :** (24) Successful cloning of a sheep by British scientists. **April :** (11) End of Angola civil war, 500,000 people were reported dead. (15) Hale Bopp comes closest to the Earth. (24) Election related violence killed 130 in Indonesia. **July :** (4) NASA's Pathfinder lands on Mars. (13) Economic crisis in South East Asia. (29) Nuclear test conducted by China. **Aug :** (29) 200 slaughtered in Algeria. (31) Princess Diana killed in Paris. **Sept :** (5) Mother Teresa passed away. (19) Jiang Zemin is the paramount leader of China. (30) Forest fires in Malaysia and Indonesia.

## 1998

**Jan :** (1) Muhammad Rafiq becomes President of Pakistan. (3) 412 people massacred in Algeria. (8) New Dutch law legalises gay and lesbian marriages. (13) Fidel Castro re-elected President of Cuba. (26) Sri Lankan government outlaws the LTTE. (27) Clinton denies having relations with former White House aide Monica Lewinsky. (29) 14

nations signed to construct a global space stations. **Feb :** (4) The UN awards \$ 5.5 m to 61 Gulf war victims. (10) The film 'Titanic' wins 14 Oscar nominations. (21) Russia ratifies the EC on Human Rights. **March :** (3) Space probe Galileo offer evidence that Jupiter's moon Europa has a massive ocean under its icy surface. (11) Gen. Suharto becomes President of Indonesia for a record of seventh five-year term. (23) Yeltsin dismisses the entire Russian cabinet. (24) Titanic wins 11 Oscar awards. **April :** (6) Gandhi figures in the list of 20 most influential person of 20th century by Time magazine. (19) Top dissident leader of China, Wang Dan, released. **May :** (11) India conducts nuclear tests at Pokhran. (24) Hong Kong elections for legislators. (28) Nuclear test by Pakistan. **June :** (22) The only functioning reactor at the Chernobyl nuclear plant is restarted. **July :** (1) European Central Bank launched in Frankfurt. (12) France wins World Cup 1998 football (18) Tidal wave kills 1500 people in New Guinea. **Aug :** (7) Lewinsky admits that she did have sex with Clinton. (18) Clinton admits liaison with Lewinsky. (24) Suu Kyi calls off her roadside protest against military authority. **Sept :** (2) NAM summit at Durban. (4) S.Africa conveys her apology to India for the reference of Kashmir problem by Nelson Mandela in NAM summit speech. (10) Kenneth Starr sends a 445 page sex scandal to the Congress. (28) MCC, world's oldest cricket club, votes to admit women. **Oct :** (8) Portuguese novelist Jose Saramago wins Nobel prize for literature. (11) A street in Germany named after Gandhi. (23) Vietnam frees 2630 prisoners under a presidential amnesty. (26) Peru and Ecuador signed peace agreement. **Nov :** (2) Hurricane Mitch claims 1300 lives in Central America. (8) Bangladesh court sentenced 15 person to death for Mujibur Rehman murder case. **Dec :** (2) US issues order on easing curbs against India and Pakistan. (11) Astronauts enter the newly built International space station about 240 miles above earth. (20) US, UK call off air strikes against Iraq.

## 1999

**Jan :** (3) Pakistan PM Nawaz Sharif escapes attempt on life. (13) US President Clinton pays \$550,000 to Paula Jones to settle her sexual



harrassment case. (25) A masive earthquake hits the Colombian city of Armenia. Feb : (2) China rejects Primakov's proposal for 'Strategic Alliance' with India. (10) G-15 meet opens at Montego Bay, Jamaica. (12) Clinton acquitted in the impeachment trial. (24) Rusia and China sign 11 agreements to boost sagging ties on the occasion of Chinese Premier Zhu Rongji to Moscow. March : (1) Gen Obasanjo declares the new civilian President of Nigeria. (15) China's parliament amends constitution to give a boost to privatisation. (24) NATO warplanes launch air strikes against Serbian targets in Yugoslavia. (31) NATO rejects peace offer by the Yugoslav President Milosevic. April : (7) Chinese Premier Zhu Rongji arrives in US for vital talks on trade and other related issues. (13) Russia moves UNO's International Court of Justice to determine the legal consequences of NATO air strikes on Yugoslavia. (28) Pakistan creates anti-terrorism courts. (30) Cambodia becomes a full fledged member of an expanded ASEAN. May: (12) Russian President Boris Yeltsin sacks PM Yevgeny Primakov. (21) Nepali Congress Party gets absolute Majority in parliamentary polls (23) Over 200 killed in a cyclone that hits Pakistani coast. June : (2) Najam Sethi the detained editor of *Friday Times* released by the Pak. govt (11) Osama Bin Laden appears in a rare interview in Arab TV. (14) Thabo Mbeki elected S. Africa's second democratic President. (20) Australia won World Cup Cricket. July : (17) Plane carrying John F. Kennedy Jr., his wife and her sister missing (21) The wreckage of J.F. Kennedy Jr's air plane located (25) UK seizes 20 tonnes of Pak-bound vital nuclear arms components. Aug. : (1) US daily *Washington Post* identifies India as a target of Osama Bin Laden's terrorist network. (13) Steffi Graf announces her retirement from tennis (17) over 1000 killed in a fierce earthquake in Turkey. Sept: (4) East Timor votes for independence rejecting autonomy under the Indonesian state. (5) Israel and Palestine sign a landmark agreement in Egypt for implementing Wye accord (12) Jakarta agrees to allow UN's troops into East Timor. (17) Bin Laden declares Jihad (holy war) against India (24) France expresses strong support for India's claim for permanent membership in an expanded



Security Council. (27) Hosni Mubarak elected for the fourth time as president of Egypt in a referendum. (29) Japan faces its worst-ever nuclear accident. Oct : (12) Nawaz Sharif govt. 'dismissed' in army coup; army chief Pervez Musharraf takes over; Nawaz Sharif put under house arrest (14) US Senate rejects CTBT

by 51 to 48 margin. (15) Pakistani army chief Gen Musharraf appoints himself the 'chief executive' and imposes martial law. (21) Megawati elected Vice President of Indonesia. (28) Clinton waives sanctions imposed on India after May 1998 nuclear tests Nov : (12) Seven rockets fired at US and UN offices at Islamabad. (13) CHOGM suspends Pakistan indefinitely from its councils. (14) UN imposes sanctions on Afghanistan. (15) China and US sign a pact to remove trade barriers and also clear the hurdles towards China's entry into WTO. CHOGM Meet concludes. (17) Nawaz Sharif formally arrested. (25) Sharif's father and brother arrested. (30) WTO meet at Seattle starts. Mahatir Mohammed's 14-party coalition wins a comprehensive two-third majority in the Malaysian elections. Dec. : (1) Protestors disrupt the WTO proceedings in Seattle and force the authority to delay the inauguration of the four-day WTO ministerial conference. (2) US President Bill Clinton signs an international treaty to ban child labour. (15) United States formally transfers control over the Panama Canal to Panama. (16) Germany announces that it will pay a massive settlement for Nazi-era slave labourers. (18) Sri Lankan President Ms Chandrika Kumaratunga narrowly escapes attempt on life by suicide bomber. (19) Portugal officially hands over the territory of Macau to China. (20) Space shuttle Discovery blasts off on an eight-day mission to fix the Hubble telescope. (21) 75% turnout in Sri Lankan poll. (22) Sri Lankan President Chandrika Kumaratunga sworn in as President for a second term. (31) Russian President Boris Yeltsin resigns and names Prime Minister Vladimir Putin as acting President until the presidential elections in March 2000. ■■

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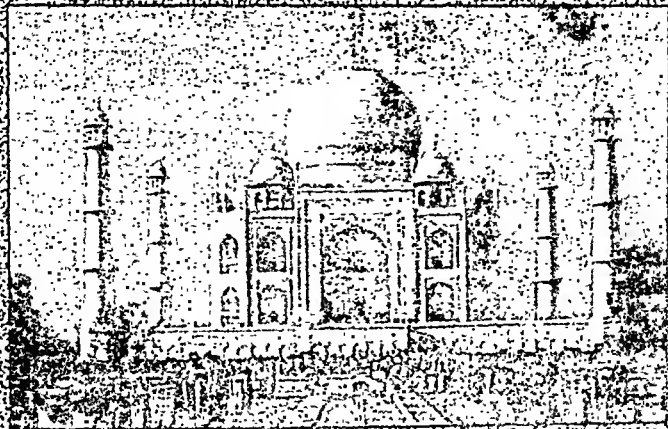
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# ISSUES IN Focus

## National Security Council A positive thrust to national defence

Recently, under the chairmanship of Prime Minister Atal Behari Vajpayee, a six-member National Security Council was formed to undertake a strategic defence review and decide long term policies on questions pertaining to national defence. The council was formed as the basis of the report by Mr K.C Pant who headed a three-member task force.

Principal Secretary of the Prime Minister would be the National Security Advisor and the other five members would be the Defence Minister, the Home Minister, External Affairs Minister, Finance Minister and the Deputy Chairman of the Planning Commission. The National Security Council (NSC) will have a three-tier structure comprising Joint Intelligence Committee (JIC) which will be the secretariat of NSC, the Strategic Policy Group (SPG) and National Security Advisory Board.

However, though it looks apparently impressive, NSC, according to many experts may not be able to comprehensively answer to India's security problems with long term perspective. The committee is loaded with bureaucrats and undermines the role of professionals. SPG will comprise Foreign Secretary, the Home Secretary the Defence Secretary, Secretary (Defence Production), the Finance Secretary, Secretary (Revenue), RBI Governor, Director of IB, secretary (R) cabinet

secretariat; Secretary (DAE), the Scientific Advisor to Defence Minister, Secretary (Space) and the Chairman (JIC). National Security Board will also consist of experts in external security, strategic analysis, foreign affairs, defence etc.

National Security Advisory Board which was constituted by the Prime Minister, comprise 22 members and defence analyst K. Subrahmanyam has been named as the convenor of the Board. Instead of Principal Secretary, a topnotch retired defence personnel could have been given the key post of National Security Advisor as he would have been better adept to give pragmatic advice as a result of his wide exposure in the field of strategic defence. Moreover, the Strategic Policy Group, the pivot of NSC, has also been clustered by bureaucrats who have little practical exposure on defence related issues. The secretariat will also be manned by JIC which has a long and undistinguished record of mediocre performance. One cannot help feeling a sense of patchwork in the Vajpayee government's formation of the six-member NSC if one reflects on its viability from the point of view of its execution. It wouldn't be surprising if different wings of NSC act without any coordination with each other and an acrimony surfaces between defence professionals and bureaucrats in the near future

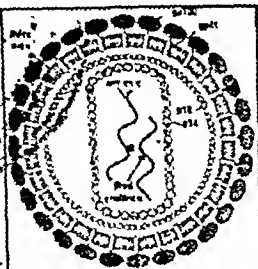
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## AIDS India's woes continues

In 1998, reportedly 3 million people have been infected by the lethal virus which includes 1.2 million children below the age of 15. In total

six million people were infected by AIDS this year which reflects the failure to prevent the spread of the disease

India, though late entrant has, thanks to a succession of callous governments, now houses the largest number of AIDS victims in the world today.



More precarious is the fact, that in India the disease is spreading at a rapid pace. In five states, more than one percent of the population have fallen victims of the HIV virus. The fact that AIDS is also making rapid inroads in the rural areas is the most alarming factor and calls for an urgent and concerted action to counter the spread of the disease. Many experts are of the opinion that if AIDS spreads at the same rapid pace in India as it is spreading, then it would bring premature death to the youth in large numbers and may also reverse the trend of low infant and child mortality rates which have been acquired after centuries of medical development.

HIV virus, which is the cause of acquired immunodeficiency syndrome (AIDS) can be transported through unprotected sexual intercourse with an already infected person, transmission of HIV contaminated blood, use of HIV contaminated needles or syringes and from HIV infected mother to child. The disease was first identified in the USA in 1981 among gay and bisexual men.

HIV infection and AIDS are caused by a class of retroviruses known as HIV-1 and HIV-2.

## The danger worsens

The revelation that 3.5 million Indians are HIV positive is bound to cause alarm. HIV infection cases grew from 2.5 per 1000 in 1986 to 22.73 per 1000 in 1998. These figures are truly alarming and indicate the grave danger posed by this threat. HIV infection in India has penetrated to all levels of the general population. About several lakh of those infected could be living in rural areas and a large number of women may be among those infected. The disease has moved from being a disease associated only with high risk groups like commercial sex workers to invade the lives of people across the social spectrum. It has also moved from urban areas to rural areas where its spread is facilitated by lack of awareness and poor health facilities. The lack of information about the disease in the country is appalling. With nearly 40% of the country's population illiterate, the task to educate and create awareness among the masses is Herculean. With a crumbling public health system and poor standards of hygiene, the country is sitting on a HIV time bomb. The spread of tuberculosis in conjunction with HIV is posing a serious health hazard in the battle against AIDS. The cost of the spreading scourge on the national economy has not been properly visualised.

HIV-1 was isolated in mid 1984 and it is the cause of AIDS in Central Africa and most of the other parts of the world whereas HIV-2 is the cause of AIDS in Western Africa. Both HIV-1 and HIV-2 are similar in structure and both can bring about the death of the victim.

## India and Sri Lanka

### Morale boosting free trade agreement signed

A free trade agreement between India and Sri Lanka was signed during the recent visit of Sri Lankan President Mrs. Chandrika Kumaratunga to India. The agreement would eliminate tariff on over 900 items. Under the agreement, India would, over a period of three years, also eliminate tariffs on imports on items excluding the 900 items

and the items on the negative list from Sri Lanka. Sri Lanka would also eliminate tariffs on imports from India within a span of eight years. The phasing out of tariffs is the process to develop a free trade zone between the two countries. The Union cabinet has also cleared the terms of a trade agreement with Sri Lanka. However

concessions on textile items would be restricted to 25% and the items on the negative list also not be subjected to any tariff concessions. India has about 400 items on the negative list which would include items on garments, petrochemicals, alcoholic spirits etc. The agreement is a path breaking one as it may provide a signal to other countries in the neighbourhood to go in for such pacts. In fact the Sri Lankan President who is also presently the chairperson of SAARC has said that it might provide an impetus to emergence of SAARC, Free Trade Area (SAFTA).

The Sri Lankan President has urged India to take the initiative in South Asian economic integration.

The agreement is a big achievement of the Vajpayee government. India already has a free trade agreement with Nepal and Bhutan. Bangladesh has also indicated that it is interested in such an agreement. It is only with Pakistan that problems persist. Every suggestion of India has been shot down by the Pakistan government. With Sri Lanka joining India, Pakistan will be under pressure to join for its own sake. ■

## **Illegal immigrants**

### **Changing political equations in borders**

According to government estimates, India has about 18 million illegal immigrants. Most of them are Bangladeshi Muslims who have illegally exported themselves and have also managed to get themselves enrolled in electoral rolls. Apart from adding to India's already unmanageable population problem, it is also jeopardising the electoral process. It is even believed, that on voting day, more than a lakh of Bangladeshis who live in Bangladesh, do cross over to West Bengal to vote. Illegal immigration is changing the political landscape of certain border areas. Successive governments at the Centre and those States bearing the brunt of this problem, have turned a blind eye, for purely electoral considerations.

Meanwhile, in a related development, the Supreme Court has asked the Union Government to file a comprehensive affidavit on illegal migration from Bangladesh into West Bengal and the north-eastern states. The court has pointed out that it is a serious matter as it threatens to change the demography of the States. The information available till date is enough cause for alarm. According to a study by the Indian Statistical Institute, of the 1.6 million migrants settling in West Bengal between 1981-1991, 7,00,000 were from other States of India. Nine hundred thousand were from Bangladesh. According to official estimates, about

300,000 people cross over from Bangladesh into the north-east states annually.

The issue of illegal migration from Bangladesh has always been a major political issue. The long and porous nature of the India-Bangladesh border as well as the similarity in culture and language of the regions has made the task difficult for the authorities. Large parts of the Indo-Bangla border remain unfenced. Border roads for patrolling remain inadequate. Apart from the economic and social burden, illegal migration also poses a threat to national unity and integrity. Countries inimical to India use this migration to pump in intelligence agents and saboteurs. The situation calls for urgent, corrective action.

### **No quota-based promotions**

In a significant ruling, the Supreme Court recently ruled that employees recruited under the reserved categories would not have the right to claim seniority over their general category students. The ruling has at last given merit a breathing space. A five-judge bench headed by Justice A.S. Anand decided the matter which came into focus from three applications which sought clarification of the SC's earlier judgement on the issue. An earlier judgement which stated that a manadamus can be issued either to provide for



reservation or rules relaxation for the reserved categories, was also overruled by the Court. The Court held that the persons who were promoted through reserved categories, wouldn't be eligible to count their seniority in the promoted category from "the date of their continuous official in the promoted post vis-à-vis the general category

candidates who were senior to them in the lo category and who were later promoted". The court's decision was in conformity with Article 1 and Article 16 (4A) which pertain to equality opportunity in matters of public employment the Scheduled caste, Scheduled tribe and O backward classes.

## Policy document

### National policy for the old

A comprehensive national policy for the old (for those over sixty) has been envisaged in a draft policy which is in the pipeline for a cabinet approval. Besides suggesting that the year 2000 to be observed as the year of the older persons, the document suggests the expanded old age pension scheme to include the private sector. Covering all older persons below the poverty line under old age pension scheme is one of the goals of the policy. The draft stresses the need to revise the quantum of pension at regular intervals to cushion it against inflationary pressures. Subsidised health care network with private sector involvement is also on the anvil. Increased standard tax reductions for senior citizens have also been

suggested. The policy also seeks to ensure settlement of all retirement benefits. Taking medical problems of the older people into consideration and that these are compounded by high cost of medical care, it also proposes to provide an annual rebate for medical treatment whenever the retired persons do not enjoy medical cover from their former employers. Another important area of the draft seeks to encourage the governments to enact laws that will make it obligatory for children with adequate means to take care of parents without the wherewithal. The proposed legislation will be on the lines of the Himachal Pradesh Maintenance of Parents and Dependents Bill, 1996.

## Defence

### Naval Chief's dismissal

In an unprecedented development in the history of post independence India, Admiral Vishnu Bhagwat, the chief of the Naval Staff was summarily removed from his post on charges of insubordination by the Government of India. The move was sudden and shook the defence establishment. Along with the Admiral, the Defence Secretary Ajit Kumar was also shown the door. The pros and cons of this action continued to be debated in the highest political and defence circles. The Defence Minister who recommended the dismissal to the President of India and who, is also the Supreme Commander of the Armed Forces, justified the action saying that the naval chief had

been adopting a defiant attitude and had begun to reveal some 'disturbing tendencies'. Admiral Sushil Kumar was appointed the naval chief. Political analysts have pointed out the move is firm expression of the assertion of civilian authority.

Constitutionally, the government has the right to dismiss personnel of the defence forces. Article 310 of the Constitution lays down that every person who is a member of a defence service or of a civil service of the Union holds office during the pleasure of the President. While there are safeguards for the security of tenure of civil servants as distinguished from military personnel

injunction made for the military personnel is evident in Article 33 which says that Parliament shall have the power to modify the application of Fundamental Rights to the members of the armed forces, police forces or intelligence organisations as to ensure proper discharge of their duties and maintenance of discipline amongst them. In exercise of this power, Parliament has enacted the Army and Air Force Acts of 1950 and Navy Act of 1957, which empower the Central Government to make rules restricting the Fundamental rights of the defence personnel, for the sake of discipline which is considered absolutely essential to maintain the security of India. These rules are quite stringent and their prime objective is to ensure discipline in the armed forces.

In the United States, the summary dismissal

of the US army's first five-star general in 1951 by President Truman was an instance where the executive asserted his authority. Gen Mac Arthur wanted to bomb China to arrest the spread of communism and when denied permission by President Truman, appealed directly to the Congress. President Truman used his all-powerful executive authority to summarily dismiss the decorated general.

Admiral Bhagwat was allegedly found guilty of dragging in the judiciary to settle cases involving personnel of the defence forces. Defence analysts opined that the frequent resort to litigation to settle disputes over ranking and promotions would cripple the armed forces and therefore in the face of such defiance, the government had no option other than to resort to such an extreme step. ■

## Pulse Polio Programme

### A saga of continuing success

The Pulse Polio Immunisation Programme launched after much delay in 1995 has been a saga of continued success in the country. The World Health Assembly had passed a resolution in 1988 to eradicate polio by the year 2000.

In India, the programme launched in 1995 and continuing till date has been a remarkable success.

The programme has managed to become a people's programme in the true sense, a fact evidenced by 136 million children who were vaccinated on January 17, 1999. If the current rate of success continues with each successive year, very soon India would join the developed countries in becoming polio-free. Till now, nearly 93% of the vulnerable children population have been vaccinated. The five-year long programme is carried in two phases in the months of December and January when viral activity is lowest.

The success of this programme has been made possible by the hardwork and dedication of the health workers who contacted 50 per cent of

the rural and 47% of the urban population. A concerted effort by doctors, social workers and village panchayats along with the positive role played by televising in dissemination of information has made the programme a remarkable success. A sample survey conducted revealed that the response in West Bengal, Tripura and Assam was less than the national average and there was less enthusiasm in the Muslim community. The survey also highlighted the importance of awareness among the parents as a major reason for the success of the programme. By 2000, India is expected to be free from this crippling disease. Apart from building a healthy nation, the success of Pulse Polio would help the government to save a considerable amount every year on treatment of children who would otherwise have been affected by the disease. The Pulse Polio programmes a shining example of what a committed government and a responsive populace can achieve. ■

## Sexual harassment Historic judgement by SC

Recently the Supreme Court, in a historic verdict upheld the dismissal of an employee on sexual harassment charges. The court proclaimed that lenient action in such cases was bound to have a demoralising effect on working women. The National Commission for Women (NCW) has lauded the Supreme Court judgement opining that it will have the most salutary effect on victims of sexual harassment in workplaces. What is noteworthy is that the apex court has asked to examine the broader probabilities of cases and not get bogged down by dictionary meaning of molestation. NCW has said that as such it opens a new direction for the judiciary. Interestingly, the judgement also enjoins upon the judiciary to remain alive

to international Instruments and Conventions and apply them to cases where there was no inconsistency between international norms and domestic law. The court while upholding the dismissal of this employee of the Approval Export Promotion Council (APEC) quashed an earlier Delhi High Court verdict on the issue. The verdict is being considered to be a historic one as this is the first judgement in favour of an aggrieved woman in a sexual harassment case since the SC laid down directives on sexual harassment at the workplace in August 1997. The SC has also ruled that sexual harassment is violative of the two fundamental rights guaranteed by the Indian Constitution namely, the right to gender equality and the right to life and liberty.

## Orissa killings Centre orders judicial probe

The Centre has appointed D.P. Wadhwa, a sitting judge of the Supreme Court to institute an inquiry into the brutal burning of the Australian missionary and his two sons on the night of January 22-23. The inquiry is being set up under Section 3 of the Commission of Inquiry Act, 1972. The decision was taken by the Union cabinet after it heard a report of the three-member ministerial team that visited Orissa. Graham Staines, 58, and his sons Philip, 9, and Timothy, 6, died when the jeep in which they were travelling were burnt to death in Keonjhar district of Orissa. Staines had been involved in rehabilitation of leprosy patients. The gruesome murders led to an outpouring of shock and severe condemnation. President K.R. Narayanan called it a 'monumental aberration' and said the 'barbarous killing.... belongs to the world's inventory of black deeds'. Opposition parties led by the Congress strongly condemned the incident and took the view that the BJP-led coalition government had contributed to the climate of hate and violence by compromising with

individuals and organisations that spewed communal hatred. The BJP also came in for criticism from its allies as well. The Telugu Desam Party which supports the Vajrapayee Govt. from the outside said that with the Orissa incident the BJP had lost the 'moral right to rule'. Home Minister L.K. Advani's refusal to put the blame on the Bajrang Dal and absolving them of the deed also fuelled tempers.

The killings also drew international condemnation and the government's attitude also came in for flak. The killings sent shock waves through the state and the country. The BJP on its part, blamed the state government for its failure on the law and order front and reiterated that neither the VHP nor the Bajrang Dal had any hand in it. Meanwhile, Christian organisations have strongly protested to the government on the growing instances of a tack against their community. The government will have to tread carefully on this issue as has become a litmus test of the BJP government's secular credentials.

## SC ruling

### Landmark verdict puts mother on par with father

In a landmark judgement, the Supreme Court provided a ruling that gives a Hindu mother equal right with her husband to the guardianship of their children. In effect, it means that a mother can act as the natural guardian of a minor and all her actions in this capacity would be valid even during the father's lifetime. The ruling was handed down by a three-judge bench in two separate but concurring judgements while interpreting the provisions of the section 6(a) of the Hindu Minority and Guardianship (HMG) Act, 1956 and section 19(b) of the Guardian and Wards Act, 1890. Till now, both these provisions recognised only the father as the natural guardian of a minor till now. Section 6 (a) of the HMG Act reads as follows: "The natural guardians of a Hindu minor, in respect of the Hindu minor's son as well as in respect of the minor's property, are, in the case of a

boy or an unmarried girl, the father and after him, the mother, provided that the custody of a minor who has not completed the age of five years shall ordinarily be with the mother". The judgement came in the wake of a petition filed by the noted writer Gita Hariharan. She had applied to the Reserve Bank of India in 1984 for a 9 per cent Relief Bond to be held in the name of her minor son alongwith an intimation that would act as the natural guardian for purposes of investments. The application, however, was sent back to Gita by the RBI, advising her to produce the application signed by the father and, alternatively, the bank stated that a certificate of guardianship from a competent authority in her favour ought to be forwarded so as to enable the bank to issue the bonds as requested. She then approached the courts which delivered the landmark judgement. ■

## Indo-Pak ties

### Bus diplomacy and Lahore Declaration ushered hope

The historic visit of Indian Prime Minister Atal Behari Vajpayee to Lahore by bus and the subsequent signing of the Lahore Declaration had raised hopes of improved Indo-Pak ties in the future. Shri Vajpayee's bus ride to Pakistan was the first by any Indian Prime Minister in the last 51 years. Mr Vajpayee's visit was also a media savvy affair and it helped in considerably reducing the tension in the aftermath of the Pokhran blasts. The two PMs, during their talks, touched upon almost all issues of mutual concern including that of Kashmir and also regional cooperation within SAARC countries to increase not only mutual trust and harmony but also broadbase economic cooperation, by sharing one another's human resources as well as expertise in various fields. Vajpayee's gesture to seriously improve ties with Pakistan was reciprocated

with equal warmth by the Pakistani Prime Minister Sharif. Despite protests by the fundamentalist Jamaat-i-Islami, the Pakistani government took all steps to ensure that the security was tight during Vajpayee's visit. The diplomatic initiative has been widely welcomed at home and abroad and it once again demonstrated India's willingness to go an extra mile to improve relations with Pakistan.

**Lahore Declaration :** The Prime Ministers of both the countries signed a declaration at Lahore on February 21 committing New Delhi and Islamabad to taking immediate steps to reduce the risk of nuclear accidents and unauthorised use of nuclear weapons. The Lahore Declaration, as the document is called, states that the countries would discuss 'concepts and doctrines' with a view to 'elaborating' Confidence Building Measures

(CBMs) in nuclear and conventional spheres in order to prevent conflict.

**MoU signed :** A direct and immediate result of the Lahore Declaration was a MoU signed between the two foreign secretaries which will work out the technical details of the nuclear-related CBMs.

The MoU also set the stage for a regular dialogue between India and Pakistan, covering disarmament and non-proliferation issues within the context of ongoing talks at multinational fora. The memorandum made binding on both sides to immediately exchange information about any accidental, unauthorised or unexplained incident that would create a risk of a nuclear skirmish and it was also decided to simultaneously identify and establish an appropriate communication mechanism to diminish the possibility of misinterpretation by either side of any action or

any incident.

According to the MoU, the two countries will continue to abide by their unilateral moratorium on nuclear tests, unless the supreme interests of either side are jeopardised by extraordinary events. At first sight, the MoU appears nothing more than a declaration of intent. But in a historical perspective it is a far-reaching commitment by both sides to reduce the risk of nuclear war, and build a framework for peace. The visit was a personal triumph for Vajpayee coming as it were in the face of challenges to his government. It has given him a crucial breather in consolidating his hold over the government and the party both of which seem to be beyond his control. The MoU still requires considerable work before it yields working agreements but a climate of hope and optimism has been created.

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## Telecom policy

### Government – TRAI tussle resolved

On March 26, the Union government unveiled a new telecom policy and also put to rest the controversy over the Telecom Regulatory Authority of India's (TRAI) recommendations on telephone tariffs. The new policy allows a multiple operator regime in fixed services and four operators per circle in cellular. *The highlights of the policy are as follows*

- Department of Telecommunications to be corporatised by 2001
- Attorney General to recommend if existing basic and cellular operators can shift to revenue sharing
- Domestic long distance telephone calls to be opened to private operators by January 1, 2000 and TRAI to recommend the terms by August 15, 1999.
- Internet telephony not permitted at present
- KU band opened for satellite communications purposes

- TRAI only has the power to arbitrate in case of disputes between the government, the licensor and a licensee.
- DoT and MTNL to enter cellular service as the third operator. Entry of fourth operator is to be determined by recommendations of the TRAI which however is not binding on government.

In another related development, the government said that the DoT and MTNL would set rentals and call charges below the ceilings set by TRAI. The DoT has chosen to keep tariffs for rentals at the current levels for rural subscribers. However, it has accepted the reduction in domestic and international long distance charges. This means that the TRAI's March 9 order on order relating to domestic and international remains unchanged. A new category of urban calling subscribers created for those making more than 200 calls per month.

## Earthquake in UP

### Nature unleashes her fury

An earthquake measuring 6.8 on the Richter scale devastated Chamoli and Rudrapur districts in the Garhwal division of the UP hills on the midnight of March 28, 1999 killing around 100 people and leaving thousands homeless. The epicentre of the earthquake was in Nandprayag town of Chamoli district. This was the second major natural disaster in the Garhwal hills in the last six months. Geologists have said that the quake is a result of the continuing northward movement of the Indian landmass since it rammed into the Eurasia 80 million years ago. The movement is very slow, builds tremendous stress within the Earth's crust and the frequent earthquakes are a release of this stress along the 'faults' (geological fractures in the Earth's crust), making the area quake-prone. The Indian plate is very slowly moving in the north and north-east direction and colliding with the Tibetan plateau. This causes thrust to develop at the foothills of the Uttarakhand. Experts say that predicting earthquakes is virtually impossible at present and the only way

to minimise the damage is to use technology that is suitable for building houses in the seismic zone. Japan, for example, has perfected the technique of building earthquake-proof buildings. *Major earthquakes in India in the 20th century are :*

- April, 1905 : Kangra quake in Himachal Pradesh kills thousands.
- January, 1934: Strong quake near Bihar-Nepal border causing extensive damage in Kathmandu.
- June, 1941: A heavy quake measuring 8.1 on the Richter scale rocks Andaman islands
- August, 1950: Major quake measuring 8.5 on the Richter scale rocks Assam
- January, 1975: Kinnaur and Lahul Spiti rocked in the Himalayas in a quake measuring 6.2.
- August, 1988: Quake measuring 6.6 kills 900 people near Bihar-Nepal border.
- October, 1991: Over 1,600 killed in Uttarkashi quake
- September, 1993: Massive quake in Latur kills over 10,000
- May, 1997: Forty killed in quake in Jabalpur
- March, 1999: Over 100 killed in Chamoli quake. ■

## Narcotics Act

### SC judgement

In an important judgment, the Supreme Court in a ruling has held that no court has the power to suspend the sentence of more than a year passed on a convicted person under the Narcotics Drugs and Psychotropic Substances Act, 1985, during the pendency of the appeal presented by him. The judgement has thus upheld the view of a full bench of the Kerala High Court while overruling contrary views by the Delhi High Court. Section 2 A of the Narcotics Act, inserted in 1989 says "No suspension, remission, computation in any sentence awarded under this Act (Sec. 27 excepted)- notwithstanding anything contained in the Code of Criminal Procedure (Cr PC) shall be suspended or remitted or commuted". The question was posed whether there was a dilution of this

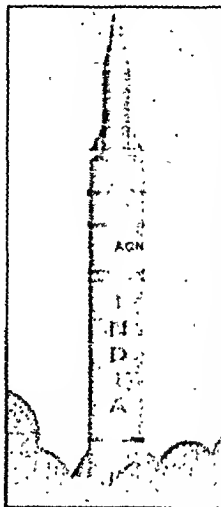
mandate by virtue of Sec. 389 of the Cr.PC which confers powers on the High Court for suspension of sentence during a pending appeal. The SC judgement said that the High Court can exercise the powers of Sec. 389 Cr.PC only to the extent that such powers are applicable which means that if there is an interdict against applicability of any provision, the High Court cannot use such a provision, despite its inclusion in Chapter 29 of the Cr. PC. It may be noted that Art. 72 of the Constitution of India confers power on the President of India "to suspend, remit or commute sentence" in all cases where punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union Govt. extends and Art. 161 confers a similar power on the State Govt. ■

## Agni II

### A shot in the arm for India's defence

On April 11, India test fired the intermediate range ballistic missile-Agni II. The successful testfiring can be translated as a significant enhancement of India's defence capability and may prove an effective deterrent to the countries with hostile designs on India. The picture perfect launch of Agni II at 9.47 am from IC-4 at Wheeler Island (a new launching site) on the Orissa coast has bridged a key gap in India's minimum nuclear deterrent profile. The test firing of Agni II embodies the fact that the country is now ready for production or has reached the point of operationalisation. The successful test firing of this ballistic missile, exactly 11 months after the Pokhran blasts has thus added a new dimension to India's capacity to defend herself from hostile neighbours.

The most important feature of test firing was the usage of solid fuel as propellant, which reduces the time for preparation of the launch. Solid fuels have logistical edge such as a longer shelf life and is also non corrosive. The Shakti series of nuclear blasts had given India the capability to



design a comprehensive range of atomic warheads but yet lacked the missiles that would deliver those warheads beyond specified range. Now, with the successful test firing of Agni II, warheads can be taken beyond 2000 km and delivered and thus urgent need for a delivery system with range beyond 2000 km has been duly addressed. The missile has global positioning system (GPS) which

would improve its accuracy and circular error probability. The GPS can also facilitate navigational corrections. Agni II was launched from mobile platform which would result in flexible deployment of the weapon system and would have better chance to avoid air raids. Agni II is capable of carrying one tonne payload and can carry both conventional and nuclear weapons. It is 20 metres long, weighing 16 tonnes and has solid propulsion system.

In accordance with the Lahore declaration, Pakistan was informed about the launch of Agni II on April 9. Five permanent members of the United National Security Council, Germany and Japan were also informed of the test firing. Then Prime Minister Atal Behari Vajpayee declared that the test firing was "purely defensive", Pakistan promised a fitting response and sure enough, Ghauri II was test-fired. The Indian government has shown considerable conviction and courage in going ahead with the Agni II intermediate range ballistic missile (IRBM). This was India's first

#### Important features of Agni II

- Solid propulsion system
- Range beyond 2000 kilometres
- Navigation guiding and control systems
- Designed to carry a 'special weapons' payload of over 1000 kg
- Sophisticated on board packages and an advanced communications interface.

#### *Background*

- Integrated Missile Development Programme (IGMDP) begins in 1983. It constitutes Prithvi, Akash, Nag, Trishul and Agni.
- Agni-I testfired in 1989. It was test fired again in 1992 and 1994 respectively.
- An enigmatic five year restraint.
- Agni II was successfully test launched in April 1999.

IRBIA since the last five years despite the triumphant test-firing of Agni I for three times and the Prime Minister must be given credit for giving new thrust to India's defence and building a

significant nuclear missile deterrent. The Agni I can be seen as watershed in India's missile development technology and also a beginning where many larger range IRBMs

## Punjab

### Tercentenary of Khalsa Panth celebrated

The year 1999 marks the tercentenary of the Khalsa Panth which is being celebrated by Sikhs all over the country and outside Sri Anandpur Sahib, the birth place of Khalsa is the centre of hectic activity. It was here, 300 years ago on Baisakhi day, the order of Khalsa was founded. Anandpur Sahib has become the bee-hive of Sikh devotees from all corners of the globe. It has been 300 years since Guru Gobind Singh, the tenth and the last Guru of the Sikhs, a valiant warrior and a man of uncompromising principles, founded the order of Khalsa. The foundation of Khalsa on 1699, marked the amalgamation of martial spirit with the saintly heritage of Sikhism, as propagated by Guru Nanak in the late fifteenth century. Guru Gobind Singh formed Khalsa to protect the Sikh community from the religious intolerance unleashed during the regime of Aurangzeb. His war against the state sponsored religious fanaticism that resulted in forced conversion of many Hindus and Sikhs to Islam, was embodied in the form of Khalsa Panth. Guru Gobind Singh urged the Khalsa community to observe a strict Spartan code of conduct and defined the Khalsa

as the one who helped every human being irrespective of the caste or religion. Khalsa was also his platform to pledge his opposition to the rigid caste system that was very much prevalent in India. From Anandpur Sahib, Guru Gobind Singh launched the Khalsa fraternity on the Baisakhi day of 1699. It was a fraternity devoid of false pretensions and prejudices of caste and religious rigidity and strived for peace, harmony and service to humanity. At the same time, it was a martial race willing to fight any oppression for a just cause. Thus Khalsa was essentially an order founded by Guru Gobind Singh that was a synthesis of saintliness and martial spirit. The Khalsa were to have five k's as symbols to their baptism to Sikhism. They are kesh (unshorn hair), kanga (comb), kada (steel bracelet), kachera (drawers) and kirpan (sword). All male Sikhs were therefore given the epithet Singh.

However, the glory of the tercentenary celebrations was somewhat marred by petty politicking indulged by rival factions of Badal and Tanna for supremacy in SGPC which has further mudied Akali politics.

### Rajiv Gandhi assassination case. Four sentenced to death

In a landmark judgement on 11th May, 1999, the Supreme Court sentenced four out of 26 persons convicted in the Rajiv Gandhi assassination case to death and three others to life imprisonment. The remaining 19 were acquitted. Thus the Supreme Court has not concurred with the trial court's judgement which awarded death sentence to all 26 of them.

Nalini Murugan (her husband), T. Suthenthiraja alias Santhan and Perarudran are the four sentenced to death. The three sentenced to life imprisonment are Robert Pyas Jayakumar and Ravechandran.

Though 19 of the accused were acquitted on the charge of conspiracy to assassinate the former prime minister, the SC nevertheless



concurred with the trial court's conviction and sentence of them under various sections of the Indian Penal Code such as Telegraph Act, Passport Act, Arms Act etc

Rajiv Gandhi, the former Prime Minister was assassinated on May 21, 1991 at Sriperumpudur (Tamil Nadu) by a hardline LTTE activist named Dhanu who acted as a human bomb. Her associates Subha and Sivarasan committed suicide as they were about to be captured after a long and eventful manhunt. The judgement has recorded 'appreciation' for the Special Investigation Team (SIT) constituted by the Central Bureau of Investigation (CBI) to investigate the case. Under the leadership of Mr. D.R. Karthikeyan, the SIT did assiduous work and was able to solve the crime within a short time, said the judge. The judgement brings the curtain down on one of the most sensational political crimes in India after the assassination of Indira Gandhi.

### India among most corrupt nations, says WEF

The World Economic Forum has, in a study said that India was among the most corrupt nations in Asia. Singapore is the least corrupt among 11 Asian countries, excluding Pakistan and Bangladesh. The corruption ratings for the countries

on an one-to-10 scale were Singapore 1.84, Hong Kong 2.31, Japan 2.5, Taiwan 3.43, Malaysia 5.0, South Korea 5.5, Thailand 6.13 and China 6.7. The ratings for the three most corrupt Asian nations were Indonesia 8.4, Philippines 7.98 and India 7.32. The Asia competitiveness report 1991, which is the source of the above findings was prepared by the Harvard Institute for International Development after interviewing business executives of firms who were asked to rate the level of corruption according to the extent of irregular, additional payments connected with import and export permits, business licences, exchange controls, tax assessments, police protection or loan applications.

On the economic consequences, the report said that there was clear evidence that FDI inflows to countries plagued by corruption was greatly hampered. The report said that if India was able to reduce its corruption level to that of Singapore then the net effect on attracting FDI would be the same as reducing its tax rate by 22 percentage points.

The report also stated that there was a strong connection between corruption and business vulnerability and between corruption and poor quality of supervision of financial institutions. The report also points out that domestic investment was also discouraged in highly corrupt countries.

## Environment

### SC's emission norms for automobiles

The Supreme Court in an order on April 29 banned registration of any private non-commercial vehicle not meeting Euro-II emission standards from April 1, 2000 and allowed registration of 250 diesel and 1,250 petrol cars in the National Capital region per month from May 1, 1999 till March 31, 2000 if they conform to Euro-I emission norms.

However following protests and petitions from stunned automobile manufacturers, the court on May 14, lifted the ceiling on registration of cars in the NCR from June 1 if they conform to Euro-I emission norms. The latest order means that

manufacturers who do not yet meet the Euro-II norms will suffer in comparison to competitors who have kept pace better with pollution control methods. Indeed, this latest spurt of judicial activism a welcome step as something drastic had to be done to control the ever increasing traffic and pollution in the NCR.

The Supreme Court's order on emission norms are the latest in a series of judicial interventions on environmental issues.

*A brief look at various other SC judgments on the environment*

- In 1985, the SC orders the closure of limestone quarries in Mussorie. The judgement interpreted the right to life as enshrined in Article 21 of the Constitution to include the right to a pollution-free environment.
- In 1988 tanneries without effluent treatment were ordered to be closed down in Kanpur. The court noted that a tannery which cannot afford to set up a primary treatment plant cannot be permitted to continue
- In 1994, industrial and construction activity banned on the Aravalli hills.
- In 1996, the SC orders closure of aquaculture/shrimp culture industries within the CRZ (coastal regulation zone) as defined in the CRZ notification and also directs that these industries functioning within the CRZ should pay compensation to those affected according to the 'polluter pays' principle.
- Nearly 250 industries around the Taj Mahal ordered to be closed down in 1996. In the same year, the SC orders the closure and relocation of hazardous, heavy and large industries from the NCR.
- In 1997 the SC bans the import of hazardous waste material
- In 1998, the SC upholds the decision of the Chennai High Court's green bench to order the closure of dyeing units in Tirupur for not completing the setting up of effluent treatment plants
- In 1999, in an interim order concerning the settlement rights of people living in and around national parks and sanctuaries, the SC noted 'it was imperative of the Central government to establish a mechanism by which the Wildlife Protection Act could be effectively enforced' ■

## Drug abuse

### A growing challenge for the country

The 26th of June was observed as the International Day against Drug Abuse and Illicit Trafficking. From the transit country, India is fast becoming a major consumer of different kinds of drugs. According to studies, the problem has spread amongst all the segments of the society. It is particularly serious amongst slum dwellers, transport workers, commercial sex workers and the NorthEast states of India. The threat of drug abuse has assumed a serious dimension of account of the rise in intravenous drug use leading to HIV/AIDS especially in the major metropolitan cities and the NorthEast states. The government of India has initiated various measures to combat the problem. The services of non-governmental organisations have been utilised. Under a unique programme of Govt-NGO collaboration Scheme for Prevention of Alcoholism and Substance (Drugs) Abuse shall provide funds to the extent of 90% of the expenditure to the NGO for providing awareness, counselling, treatment, aftercare,

follow up and vocational rehabilitation Centres. Under the scheme, a network of Drug Awareness and Counselling Centres and Treatment-cum-Rehabilitation centres are being run all over the country.

#### *Future tasks*

- The problem of drug abuse requires a focussed and sustained campaign.
- A comprehensive national survey on drug addiction is the need of the hour.
- Framing a cogent national policy on drugs.
- Greater focus on rehabilitation and social reintegration of addicts in to the society
- Effective utilisation of existing institutions such as Panchayat, Primary Health Centre, Sub-centre, Zilla Parishad, Anganwadi channels to disseminate information and create awareness
- Project based approach to deal with drug abuse in the North-Eastern states
- Thrust on prevention initiatives in the work place settings with greater involvement of corporate sector.

## Indo-Bangla ties Another effort at 'bus diplomacy'

The inauguration of bus service between Calcutta and Dhaka could be hailed as an attempt to improve the bilateral ties between two neighbouring countries. The respective Prime Ministers of India and Bangladesh—Atal Behari Vajpayee and Sheikh Hasina formally received the low profile 'bus journey' at the Osmani Memorial hall. Both the leaders aired positive views regarding the 'bus diplomacy' and emphasized the emotional and cultural bonding between the people of two countries.

Vajpayee's move to consolidate ties with Bangladesh has not come a day too soon. It is

imperative that India wins the confidence of its neighbours if it is to win the diplomatic battle against arch-enemy Pakistan in the light of the Kargil situation.

Vajpayee held wide ranging discussions with his Bangladeshi counterpart Sheikh Hasina on his two-day visit and also briefed her about the Kargil issue. However, Bangladesh Prime Minister refrained from taking an anti-Pakistan stand and suggested that both sides should work to eliminate tension so as to prevent an adverse fall on the subcontinent. The need to bridge the yawning trade gap between the two countries was also discussed.

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## Jammu & Kashmir Centre announces Rs 430 cr package

The caretaker cabinet of Vajpayee on July 26 approved a Rs 430 cr upgradation package for Doordarshan (DD) and All India Radio (AIR) in Jammu and Kashmir. The move aims to counter the adverse propaganda from across the border, which the Indian state-owned broadcaster is unable to counter. The DD-AIR upgradation package covers two new Earth Stations, two High Power Transmitters (HPTs), 12 mobile Low Power Transmitters (LPTs) and 60 Very Low Power Transmitters at various locations in the state. The

upgradation package will not only cover the entire state but also facilitate transmission across the LoC into the heartland of PoK.

The cabinet has also announced a host of economic decisions which are certain to raise eyebrows. They are Foreign Investment Implementation Authority to be set up to act as a single point interface between the investor and agencies. Also, an Asia-Pacific telecom standards institution, an autonomous, inter-govt body to be set up.

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## Wadhwa Commission Report exonerates Bajrang Dal

The Wadhwa Commission that was appointed on January 29 to investigate the circumstances leading to the gruesome murder of Australian missionary Graham Staines and his two sons submitted its report recently. The report said that there was no evidence of the

complicity of any authority or organisation behind the gruesome killings. According to the Commission, it was an act of hatred by a single individual and not of any organised outfit. The report also castigated the local administration for its failure to take notice of the warning signals of 'tension and

conflict' between Christian and non-Christian tribals. The verdict of the Commission would certainly be a great relief to the BJP and its sister organisations, as any verdict which indicts the Bajrang Dal would have been an ideal ammunition for the opposition, principally the Congress.

The Wadhwa Commission made ten recommendations and some of them are general in nature. They pertain to the strengthening of law and order, avoiding frequent transfer of officers and development of the tribal areas. It also strongly criticised the initial arrest of 51 persons, which according to the Commission was without any sound rational basis. It also noted that the FIR

registered in relation to this controversial case was 'a doctored document'. The report noted that Dara Singh, the prime accused in the murder, acted out of his own, and no organisation was behind him. The report dubbed Dara Singh as a fanatic who played on the raw emotions of the people and provoked them against the Christian missionaries. The one-man Commission headed by Justice D.P. Wadhwa had recommended that the National Foundation for Communal Harmony be made into a statutory authority on the lines of the National Human Rights Commission. It also criticised the visits of VIPs to the place of crime as they hampered the investigations and had called for drastically curtailing such visits. ■

## India and Israel

### More cooperation in IT

India and Israel have signed a memorandum of understanding (MoU) to increase cooperation in the information technology software and services sector. The memorandum was signed in Tel Aviv by the National Association of Software Companies (NASSCOM) president Dewang Mehta and IASH chairman Amiram Shore. According to the agreement both countries will establish a joint council of cooperation consisting of representatives of government, industry and scientific institutions. The agreement envisages exchange of business delegations, cooperation in research and

development and also facilitation of joint marketing activities, joint ventures and strategic alliances between India and Israel in the software sector. The protocol was part of the agenda charted out by the government of India to increase business cooperation with Israel especially in the software arena. The total trade between India and Israel during the financial year 1997-98 was estimated at a mere Rs 30 crore. With software being introduced, the value of trade between the two countries is expected to increase to Rs 250 crore in the next two years. ■

## India and UAE

### Extradition treaty signed

India and the United Arab Emirates signed a crucial extradition treaty on October 25 which clears the decks for extradition of terrorists, economic offenders and other criminals from the UAE. The treaty could facilitate extradition of accused in the Bofors case and the Mumbai blast case. The treaty would definitely make things easier for

the CBI and also provide a legal framework to the agency's request for extradition. The Extradition Treaty, Agreement on Mutual Legal Assistance in Criminal Matters and Agreement on Mutual Legal Assistance in Civil and Commercial Matters were signed by the Union Law Minister Ram Jethmalani and the UAE Minister for Justice. ■■

# AN OVERVIEW OF INDIA

India is one of the oldest civilisations the world has produced with an amalgamation of myriad religions and distinctive cultural and ethnic trails. India has achieved diversified socio-economic progress during the last 52 years of self rule. It became self-sufficient in agriculture production, space technology and has also become the 10th industrialised country in the world. From the snow-covered Himalayan heights to the tropical rain forests of the South, India covers an area of 32,87,263 sq km, the seventh largest country in the world. India is bounded by the Great Himalayas in the north, the tropic of Cancer to the south, Indian Ocean and Bay of Bengal on the east and the Arabian sea on the west. The Indian mainland extends between latitudes 8°4' and 37°6' north and longitudes 68°7' and 97°25'. The total length of her coastline including Lakshadweep, Andaman and Nicobar Islands is 7,516.6 km.

India has a common border with Afghanistan and Pakistan to north-west, Bhutan and Nepal to north Myanmar to the east and Bangladesh to west. The Palk strait and the Gulf of Mannar separates Sri Lanka from India. The physical mainland is grouped into four regions; the great mountain zone, plains of the Ganga and the Indus, the desert region and the southern peninsula. The geological structure comprises



of the Himalayas and their associate group of mountains, the Indo-Gangetic plain and the Peninsular shield. Indian rivers may be classified as (i) Himalayan rivers, (ii) Peninsular rivers, (iii) Coastal rivers and (iv) rivers of the inland drainage basin.

The climate of India may be broadly described as tropical monsoon type grouped into four seasons: (i) winter (January-February), (ii) hot weather summer (March-May), (iii) rainy south-west monsoon (June-September) and (iv) post-monsoon (October-December). The north-east monsoon and the south-west monsoon affect Indian climate. With these wide range of climatic conditions, India has a rich and diversified vegetation. India can be divided into eight distinct floristic regions, such as the eastern Himalayas, the western Himalayas, Assam, the Indus plain, the Ganga plain, the Deccan, the Malabar and the Andamans.

According to a recently available data, India occupies the tenth position in the world and fourth in Asia in plant diversity. The Botanical Survey of India (BSI), Calcutta, conducted 70 percent survey and described 49,000 species of plants. Several Indian plants are facing extinction due to destruction of forests for agricultural, industrial and urbanisation purposes.

The Zoological Survey of India (ZSI), headquartered in Calcutta, is the nodal organisation responsible for survey of faunal resources of India. India has a great variety of fauna consisting of 81,251 species. Following are given some of the main reasons for the loss of flora and fauna. They are: depletion of vegetative cover due to expansion of agriculture, cover-exploitation, population explosion, introduction of toxic imbalance in community structure, epidemics, floods, droughts and cyclones.

Having 2.42 percent of the total world area, India shares 16 percent of world's population. As on 1 March 1990, India's population stood at 846.30 million including the projected population of 7.72 million of Jammu and Kashmir. The population density has gone up to 267 from 216 in 1981. The sex ratio (439.23 million males and 407.07 million females) declined by seven points to 927 per thousand males. The literacy rate is

India (excluding Jammu and Kashmir) is 52.21 percent (64.13 for males and 39.29 for females).

## National Flag

The Constituent Assembly of India adopted the design of the national flag on 22 July 1947. The Indian Flag Code regulates the use and display of it. The Indian national flag is a horizontal tricolour of dark green at the bottom, white in the middle and deep saffron (Kesan) at the top in equal proportion. The ratio of width to length is 2:3. A navy blue wheel with 24 spokes is in the centre of the white band. The design of the wheel is taken from the abacus of the Samath Lion capital of Ashoka. The wheel represents the *Charka*.

## State Emblem

The Government of India adopted the State Emblem on 26 January 1950 from the Samath Lion Capital of Ashoka. Originally there are four lions standing back to back mounted on an abacus. However, only three lions are visible in the state emblem, the fourth being hidden from view. The wheel (wheel of the law) appears in the centre of the abacus with a bull on right and a horse on left and the outlines of other wheels on extreme right and left. The bell-shaped lotus has been omitted. *Satyameva Jayate* from Mundaka Upanishad meaning "Truth Alone Triumphs" are inscribed below the abacus in *Devanagari* script.

## National Anthem

The Constituent Assembly on 24 January 1950 adopted the Hindi version of the song *Jana-gana-mana*, Composed by Rabindranath Tagore, as the National Anthem of India. This song was first sung at the Calcutta session of the Indian National Congress on 27 December 1911. The Complete song consists of five stanzas but the National Anthem contains the first stanza. The playing time is approximately 52 seconds.

*Jana-gana-mana-edhinayaka, jaya te  
Bharata-bhagya-vidhata  
Punjab-Sindh-Gujarat-Mara'ha  
Dravida-Utkala-Banga*

*Vindhya-Himachala-Yamuna-Ganga  
Uchchala-Jaladhi-taranga,  
Tava shaubha name jage,  
Tava shubha asisa mage,  
Gahe tava jaya gatha,  
Jana-gana-mangala-dayaka jaya he  
Bharata-bhagya-vidhata.  
Jaya he, jaya he, jaya he,  
Jaya jaya jaya, jaya he!*

## National Song

Bankimchandra Chatterji composed the song *Vande Mataram* in Sanskrit. This song was a great source of inspiration to the freedom fighters. This song was first sung in 1896 in the session of the Indian National Congress. The national song has an equal status with national anthem. Sri Aurobindo rendered the song into English. The text of its first stanza is given below:

*Vande Mataram!  
Sujalam, suphalam, malayaja shitalam,  
Shasyashyamalam, Mataram!  
Shubhrajyotsna pulakityaminim,  
Phullakusumita drumadala shobhinim,  
Suhasinim sumadhura bhashinim,  
Sukhadam varadam, Mataram!*

## National Animal

The Indian tiger, *Panthera tigris* (Linnaeus), is the national animal of India. The combination of grace, strength, agility and enormous power earned the tiger the title national animal of India.

In April 1973, the Government of India launched 'Project Tiger' to check the decreasing population of tigers. Under



## NATIONAL NETWORK

this project 23 tiger reserves have been established covering an area of 33,126 sq km.

### National Calendar

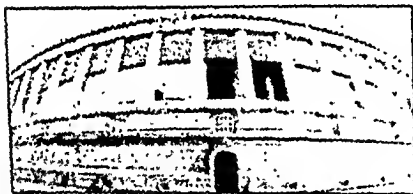
The Government of India adopted national calendar from 22nd March 1957. The national calendar is based on the *Saka Era* with *Chaitra* as the first month with normal year of 365 days. Along with the national calendar, the GOI adopted the Gregorian calendar for the following official purposes : Gazette of India, news broadcast by All

India Radio, calendars issued by the Government of India and the Government communications addressed to the members of the public.

### National Bird

The Indian peacock, *Pavo cristatus* (Linnaeus), is the national bird of India. The peacock enjoys full protection from extinction under the Indian Wildlife (Protection) Act, 1972 and is never molested for religious and sentimental reasons. ■■

# INDIAN POLITY



Under the provisions of the Cabinet Mission Plan 1946, a Constituent Assembly was to be formed for framing an Indian Constitution. The Constituent Assembly was to consist of 389 members, out of which 93 were to be reserved for the princely states. The elections to the Constituent Assembly were held in July 1946. The Constituent Assembly met for the first time on 9th December and Dr. B.R. Ambedkar was elected the Chairman of the Drafting Committee which prepared the Constitution. The Constitution was finally adopted on 26th November 1949.

### The Preamble

The Indian Constitution starts with a preamble which outlines the main objectives of the Constitution. It reads :

"WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a

SOVEREIGN, SOCIALIST, SECULAR, DEMOCRATIC REPUBLIC and to secure to all its citizens

JUSTICE, social, economic and political;  
LIBERTY of thought, expression, belief, and worship,

EQUALITY of status and of opportunity to promote among them all FRATERNITY and the dignity of the individual and unity and integrity of the nation.

IN OUR CONSTITUENT ASSEMBLY on the twenty sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION".

(The words 'Socialist', 'Secular' and the words 'and integrity of the nation' were added by the 42nd Amendment Act 1976).

The preamble makes clear that India is a sovereign democratic state drawing authority from the people and free to conduct its affairs. The word 'Republic' implies that the highest executive authority in India shall vest in a person elected by the people.

The word 'socialist' declares India's commitment to striving for a socialistic pattern of society in which the stress is not only on political freedom but also on economic political freedom but

n economic freedom and an equitable social order. The word secular emphasises that the State will not give preferential treatment to any religion and have equal regards towards all faiths and regions.

## Indian States and Union Territories

At the time of independence, two categories of states existed in India, the British Indian provinces and the princely states. There were nearly 500 princely states, most of which acceded to India. The process of integration of princely states was deftly handled by Sardar Vallabh Bhai Patel with the help of V.P. Menon, secretary states ministry and merger of princely states of India was made as smooth as possible.

In the early 50s, there was a growing demand in various parts of the country to create states on linguistic basis. In 1956, the states of Andhra Pradesh was created following long drawn agitation and death of Potti Sriramulu after a hunger strike of 56 days. This led to the raising of the demand of other linguistic entities. A commission under Fazl Ali was set up to look into the issue. On the basis of its report, the States, Reorganisation Act was passed in 1956. The Act did away with the earlier classification of states and divided the country into 14 states and 6 Union Territories.

In 1960, as result of a long drawn agitation, states of Maharashtra and Gujarat were created by dividing the state of Bombay. In 1963, the state of Nagaland was formed. In 1966, the Punjab Reorganisation Act was passed after an agitation for the formation of Punjabi Suba as a result of which Punjabi speaking areas were constituted into the state of Punjab, Hindi speaking areas were formed into Haryana. Hill areas were merged with the Himachal Pradesh and Chandigarh was made a Union Territory to serve as a common capital of Punjab and Haryana. In 1969, the state of Meghalaya was created out of the state of Assam. In 1971 the Union Territory of Himachal

## Provisions taken from some other Constitutions

- **USA** : Fundamental Rights, Vice-President, Establishment of Supreme Court, Judicial Review.
- **Britain** : Parliamentary form of government, Single Citizenship, Collective responsibility of the Cabinet.
- **Ireland** : Directive Principles of State Policy.
- **USSR (Russia)** : Fundamental Duties, Five Year Plans.
- **Canada** : Federal Set up with a strong Centre.
- **Australia** : Concurrent list, Language of the Preamble, Centre-State relationship.
- **Japan** : Law on which the Supreme Court functions.
- **South Africa** : Procedure of Constitutional Amendment.

Pradesh was elevated to a full fledged state. Later, Union Territories of Tripura and Manipur were also converted into full fledged states. Sikkim was admitted as a state of the Indian Union in 1975. In 1986, Mizoram, a Union Territory, was given the status of a state. In Feb 1987 Arunachal Pradesh was given the status of a state. In May 1987 the state of Goa was created by separating the territory of Goa from the Union Territory of Goa, Daman and Diu, the latter two areas continued to be Union Territories. With this, at present there are 25 states and 7 Union Territories in India.

## Citizenship

There is provision for single citizenship in the Indian Constitution. The person, entitled to citizenship are those domiciled in India, refugees migrated from Pakistan and Indians living in other countries. The domiciled person include those having permanent homes in India, persons either of whose parents was born in India for at least five years before the commencement of the Constitution.

The Citizenship Act of 1955 lays down rules regarding acquisition and termination of Indian citizenship. According to it, a person can acquire



citizenship through birth, through descent, through nationalisation and through the incorporation of territory.

Regarding the termination of citizenship, the Act says that (a) it can be voluntarily renounced by a citizen (b) it can be terminated if a person acquires citizenship of some other country and (c) a person can be deprived of citizenship if the government is satisfied that citizenship was acquired through fraud, if the person shows disloyalty towards the Constitution, indulges in trade with enemy countries during war, if he was sentenced for a period of two years or more within five years of his registration of nationalisation, or if he has been continuously residing out of India for more than seven years.

In 1986, the Citizenship Act was amended especially with a view to make strict the process of acquiring citizenship by refugees coming from neighbouring countries. It held that person born in India (i) on or after 26th January 1950 but prior to 26th Nov. 1986 (ii) on or after the commencement of the Amending Act, 1986 shall be citizens of India by birth only if either of their parents is a citizen of India at the time of his birth. It increased the period of acquisition of citizenship through registration from 6 months to five years

### Fundamental Rights

Part III of the Constitution guarantees certain fundamental Rights which are considered essential for the development of individuals personality in a modern state. These rights are justifiable and can be enforced by courts if necessary. However these are not absolute and reasonable restrictions may be placed on them in some special circumstances. Originally, these were seven but in 1979, through the 44th Amendment of the Constitution, the Right to Property was removed from the list of Fundamental Rights.

**Right to Equality (Art. 14 -18) :** Art 14 of the Constitution ensures equality before law and equal protection of law to which only President and Governors are exceptions whose acts during their term of office can't be scrutinised nor any

criminal proceeding could be held against them. Art. 16 goes against discrimination while Art. 16 ensures equality of opportunity in public employment. However, special measures could be taken for the development of women, children and weaker sections of society. Art 17 stands for abolition of untouchability in any form Art 18 stands for abolition of titles by the state except those related to military and educational spheres.

**Right to Freedom (Art. 19 - 22) :** Art. 19 guarantees 6 freedoms which are of speech and expression, assembly forming association, movement, residence and settling in any part of the country and of profession, occupation, trade and business. Reasonable restriction can be imposed on them in the event of country's sovereignty and integrity public order, morality etc.

Art. 20 says that no conviction of a person can be made except in case of violation of a law by him operating at that time. It also negates double punishment for the same offence and compelling a person to be a witness against himself.

Art 21 holds that there will be no deprivation of life and liberty except for the procedure established by law.

Art. 22 says that there will be no detention without informing the person on the ground of it. It also holds that a detained person should be placed before magistrate within 24 hours and such a person cannot be denied the right to consult a legal practitioner of his choice.

The Right to Freedom under Art. 19 is suspended with the declaration of emergency under Art. 352 while other freedoms may be curtailed by the laws made under Preventive Detention.

**Right Against Exploitation (Art. , 23 - 24) :** Art. 23 declares traffic in human beings and 'beggar' to be punishable offences. Art 24 prohibits the employment of children below 14 years in factories, mines and other hazardous jobs.

**Right to freedom of religion : (Art. 25-28)** Under Art. 25, all of conscience. Propagation and preaching of any religion : Art. 26 gives freedom to set up and manage religious institutions etc.

Art. 27 prohibits taxes on religious grounds and Art. 28 negates any religious instructions in institutions maintained wholly by state funds. The rights of freedom regarding religion are also subjected to limitations on grounds of public order, morality and health etc.

**Cultural and Educational Rights :** (Art. 29-30) : Art. 29 ensures to the minorities, the right to have a distinct language, script or culture of their own. It also holds that there will be no discrimination on any ground in admission to educational institutions. Art. 30 ensures the minorities the right to establish their own educational institutions and lays that the state shall not discriminate in giving grants to them.

**Right to constitutional remedies :** Article 32 gives the responsibility of enforcing Fundamental Rights to the Supreme Court and various writs in case of their violation.

**Habeas Corpus :** It is issued against wrongful detention and the detained person is released if his innocence is proved. This can't be issued in the case of criminal offence.

**Mandamus :** It is issued to lower court, tribunal or a public official to perform his duties through which Fundamental Rights of a person are enforced.

**Prohibition :** It forbids a lower court to perform an act which is outside its jurisdiction.

**Quo Warranto :** It restrains a person from functioning in a public office to which he is not entitled.

**Certiorary :** It is issued when a court or tribunal acts beyond its jurisdiction. It differs from prohibition in that it is issued after the act is performed.

## Fundamental Duties

Some fundamental duties were incorporated in the Constitution under Art. 51 'A' through the 42nd Amendment in 1976. These consist mainly of abiding by the Constitution and national flag, respecting the Constitution and national flag, to cherish and follow noble ideas of freedom struggle; to integrity; to render social service when called upon to do so, to

promote common brotherhood and harmony to preserve the rich heritage of our composite culture, to protect and improve our environment, to develop scientific temper and humanism ; to abjure violence and to strive towards excellence in all spheres of life.

The fundamental duties are not justiciable like Fundamental Rights. However, a person is liable to punishment if he deliberately violates them.

## Directive Principles of state policy

Part IV of the Constitution under Articles 36 to 51 enjoins upon the states, certain Directive Principles with the aim of ensuring a just and equitable socio-economic order. These are not justiciable like the Fundamental Rights under part III of the Constitution but are of great importance in country's governance.

Art. 36 and 37 give an introduction to the Directive Principles stating their importance.

Art. 38 gives to the state, the responsibility to promote the welfare of the people by securing a social order permeated by social, economic and political justice.

Art. 39, enjoins upon the state to provide adequate means of livelihood for all citizens, to secure equal pay for work to both men and women, to protect the workers, and provide opportunities and facilities for children so that they may develop in a healthy manner and childhood and youth is protected against moral and material abandonment. Moreover, this Article directs the state to regulate the country's material wealth and economy in a way so that it doesn't lead to concentration into a few hands, hindering public good. It also asks the state the right to equal opportunity for justice and free legal aid for people.

Art. 40 makes it the duty of the state to organise village panchayats as units of self governance.

Art. 41 asks State to secure for people to work, wage and public assistance in case of

unemployment, old age sickness etc;

Art. 43 stands for right to a living wage and conditions of work ensuring decent standard of life. It also secures worker's right to participate in management of industries.

Art. 44 enjoins upon the state to secure a uniform civil code for citizens.

Art. 45 stands for providing free and compulsory primary education.

Art. 46 gives emphasis on promoting educational and economic interests of weaker sections and protecting them from social injustice.

Art. 47 holds that state shall endeavor to raise the level of nutrition and standard of living and to improve public health.

Under Art. 48 the state shall organise agriculture and animal husbandry on modern lines and shall take measures to prevent slaughter of useful cattle i.e. cows, calves and other milch and drought cattle.

Art. 50 enjoins upon the state the duty to separate judiciary from executive.

Under Art. 51 the state shall endeavour to promote international peace and amity.

## Government of the union

### President

The President is the head of the Union Executive. The President is elected by an electoral college consisting of elected members of parliament and of state legislative assemblies, through the system of proportional representation and by means of single transferrable vote. The value of the vote of a state legislator is obtained by the multiples of one thousand in the quotient obtained by dividing the population of the state by the total number of elected members of Legislative Assembly. The value of the vote of an elected member of Parliament is obtained by dividing the total number of votes assigned to the members of Legislative Assemblies of the states by the total number of the elected member of both Houses of Parliament.

President's term for office is of 5 years for which he could give his resignation. Vice president. He could also be removed through a process of impeachment, which could be initiated by either House of Parliament on the ground of violation of the Constitution. The resolution for the impeachment of the President should be passed by each House with a 2/3rd of its membership.

In case the office of the President becomes vacant due to death, resignation or impeachment of the President, the Vice President acts as President. In case of Vice-President's absence, the Chief Justice of India acts as President.

**Powers :** All executive actions of the Government are taken in president's name. He is the Supreme Commander of Indian armed forces. All important officials including Prime Minister, members of Council of Ministers, judges of Supreme Court and High Court of states and Director General of India etc. are appointed by him.

Regarding legislative powers, the President can summon and prorogue the two houses of Parliament. He can dissolve the Lok Sabha. He nominates and discharges members to Rajya Sabha and can nominate members of Lok Sabha from Anglo-Indian community. Bills passed by Parliament must receive his assent before they become a law. When the

### Presidents of India

Name	Term
Dr. Rajendra Prasad	26.1.1950 - 13.5.1962
Dr. S. Radhakrishnan	13.5.1962 - 13.5.1967
Dr. Zakir Hussain	13.5.1967 - 3.5.1969
V. V. Giri	3.5.1969 - 20.7.1969
Jus. M. Hidayatullah	20.7.1969 - 24.8.1969
V. V. Giri	24.8.1969 - 24.8.1974
F. Ali Ahmed	24.8.1974 - 11.2.1977
B.D. Jatti	11.2.1977 - 25.7.1977
N. Sanjiva Reddy	25.7.1977 - 25.7.1982
Giani Zail Singh	25.7.1982 - 25.7.1987
R. Venkatraman	25.7.1987 - 25.7.1991
Dr. S. D. Sharma	25.7.1991 - 25.7.1997
K.R. Narayanan	25.7.1997 - 25.7.2002

ment is not in session, he enacts laws through ordinances which must be approved by the Parliament within six weeks of its reassembly.

A money bill can be introduced in Parliament only with President's prior permission. He also appoints a Finance Commission every five years to recommend distribution of taxes between the Union and State governments.

The President appoints the Chief Justice and the Judges of Supreme Court and High Court. He can grant pardon, reprieve, respite or remission of punishment or commute the sentence of any person punished under the Union law.

The Constitution also vests extraordinary powers with the President to deal with emergencies due to (a) war, external aggression and armed rebellion; failure of constitutional machinery in the state (b) threat to financial stability and credit of the country.

The President is the Supreme Commander of Indian armed forces and he has power to declare war and peace. Regarding diplomatic powers he sends ambassadors to foreign countries and receives their diplomats. All international treaties and agreements are concluded on his behalf which are however, subject to satisfaction by the President.

**Position :** Though after 42nd Amendment, it became obligatory for the President to act according to the advice of the council of ministers headed by the Prime Minister. There are certain provisions in the Constitution which make his position felt. Under Art. 78 he has a right to be informed about the affairs of the Union. He has a right to address either House or their joint sitting and to require the attendance of members for this purpose (Art. 86). He also has the power of sending messages to either House. The President can also return a non-money Bill when it is passed by both the Houses. If it is passed again by the Houses with or without changes, the President is bound to declare his assent to it.

### Vice-President

The Vice President is elected by the

### Vice-Presidents of India

Name	Tenure
Dr. Sarvepalli Radhakrishnan	1952-1962
Dr. Zakir Hussain	1962-1967
Varahagiri Venkatagiri	1967-1969
Gopal Swarup Pathak	1969-1974
B.D. Jatti	1974-1979
Justice Mohammad Hidayatullah	1979-1984
R. Venkataraman	1984-1989
C. Shanker Dayal Sharma	1987-1992
K. R. Narayanan	1992-1997
Krishan Kant	1997 till date

members of two Houses of Parliament, in accordance with the system of proportional representation by means of single transferrable vote.

The Vice President holds office for a term of five years before which he could give his resignation to the president or can be removed by the Rajya Sabha though a resolution passed by a 2/3 rd majority of its members and likewise agreed to by Lok Sabha.

The Vice President is the ex-officio Chairman of the Rajya Sabha and presides over all its meetings. He discharges the functions of the office of President, in case that post falls vacant on account of the death, resignation and removal of the President

### The prime minister and council of ministers

The real executive authority is exercised by the Prime Minister and his Council of Ministers. The Prime Minister is appointed by the President. Generally the President invites the leader of majority party to the post of Prime Minister

The Prime Minister plays a pivotal role in the formation and changes in the Council of Ministers. The president appoints other ministers on his advice. The Prime Minister presides over the meetings of the Council of Ministers. He assists the President in appointing high officials. He is the chief spokesman of the country's internal and external policies. He may advise the President to dissolve the Lok Sabha, after which fresh elections take place.

## The Union Legislature

The Union legislature or the Parliament consists of the president and the two Houses - the Lok Sabha and Rajya Sabha.

The Lok Sabha consists of directly elected representatives. The maximum strength of Lok Sabha is fixed at 545 out of which 530 represent the states and 13 represent the Union Territories. In addition, the President can nominate two members of Anglo Indian community if he thinks it is not adequately represented in the Lok Sabha.

The Speaker who is the presiding officer of the Lok Sabha is elected by members amongst themselves. The House also elects a Deputy Speaker who discharges the duties of presiding officer in Speaker's absence.

Rajya Sabha or the Upper House of Parliament consists of representatives of the states. The maximum strength of Rajya Sabha is 250 of which 238 represent the states and Union Territories and rest are nominated by the President from amongst persons who have distinguished themselves in the field of literature, art science, social service etc.

### Prime Ministers of India

Name	Tenure
Jawahar Lal Nehru	15.8.1947 - 27.5.1964
Gulzari Lal Nanda	27.5.1964 - 9.6.1964 (*)
Lal Bahadur Shastri	9.6.1964 - 11.1.1966
Gulzari Lal Nanda	11.1.1966 - 24.1.1966 (*)
Indira Gandhi	24.1.1966 - 24.3.1977
Morariji Desai	24.3.1977 - 28.7.1979
Charan Singh	28.7.1979 - 14.1.1980
Indira Gandhi	14.1.1980 - 31.10.1984
Rajiv Gandhi	31.10.1984 - 1.12.1989
V.P. Singh	2.12.1989 - 10.11.1990
Chandra Shekhar	10.11.1990 - 21.6.1991
P.V. Narsimha Rao	21.6.1991 - 16.5.1996
Atal Bihari Vajpayee	16.5.1996 - 01.6.1996
H.D. Deve Gowda	01.6.1996 - 21.4.1997
I.K. Gujral	21.4.1997 - 18.3.1998
Atal Bihari Vajpayee	19.3.1998 - 13.10.1999
Atal Bihari Vajpayee	13.10.1999 - till date
(*) Acting	

The members of Rajya Sabha are elected for a term of 6 years though the Rajya Sabha is a permanent House. One third of the members retire every two years.

**Sessions of Parliament :** Sessions are convened at President's discretion. However, there should not be a gap of more than six months between two sessions.

Joint sessions are called by the President if there is a deadlock between two Houses regarding a non-money bill. The joint session is presided over by the Speaker of the Lok Sabha and a decision is taken by a majority of the total members present.

Regarding an ordinary bill it may be introduced in either house. After first and second readings, the bill is sent to appropriate committees which thoroughly discuss it and give reports. A general discussion is held on the bill in the third reading after which the bill is sent to the other House. If the other House suggests amendment which is not acceptable to the originating House or if the bill is kept pending for more than six months, a joint session is called to remove the deadlock. After the bill is passed by the two Houses, it needs President's assent to become a law.

A money bill can originate only in Lok Sabha with President's prior permission which is certified by the Speaker usually satisfying conditions under Art. 110. The Rajya Sabha has very little powers regarding money bills since it can hold the bill for not more than 14 days and the Lok Sabha is not bound by suggestions made by it in this regard.

The annual financial statement or the budget is presented by the President at the beginning of every financial year which is a statement of estimated receipts and expenditure of the Government of India for that year.

The Parliament is assisted by a number of committees in the discharge of its duties. The Business Advisory Committee consists of 15 members with the Speaker as its chairman. It plans

and regulates the business of the Houses and advises regarding the allocation of time for discussion of different matters. There are a number of select committees constituted for different kinds of bills. These collect information and submit refund bills on them.

The Committee on privileges consists of 15 members which looks into cases regarding the violation of privileges of members of Parliaments and recommends appropriate action.

The Public Accounts Committee consists of 22 members, 15 from Lok Sabha and 7 from the Rajya Sabha. It ensures that expenditure doesn't exceed the grants made by Parliament and the money has been spent for the purpose for which it was sanctioned.

For the independent functioning of Parliament, certain privileges have been ensured. Freedom of speech and publication lies with members of Parliament in their acts related to Parliament. The Parliament has the right to punish parliamentary misbehaviour and can reprimand or punish its members and outsiders for breaking the rules of its privileges.

## State Executive

### The Governor

The Constitution lays down a parliamentary structure in the states also where the executive authority has been vested with the Governor who is to exercise them according to the advice of the council of ministers.

The Governor is appointed by the President and holds office during his pleasure. His term is of five years but he can relinquish his post earlier by giving his resignation to the President.

**Powers :** Though the Governor has to exercise his powers according to the advice of the Council of Ministers headed by the Chief Minister, he also enjoys certain discretionary powers that he exercises on his own.

Being the executive head of the state, all executive actions of the states are taken in his name. He appoints the Chief Minister and the

### Representation of States and Union Territories in the Lok Sabha and Rajya Sabha

States	Rajya Sabha	Lok Sabha
Andhra Pradesh	42	18
Arunachal Pradesh	2	1
Assam	14	7
Bihar	54	22
Goa	2	1
Gujarat	26	11
Haryana	10	5
Himachal Pradesh	4	3
Jammu and Kashmir	6	4
Karnataka	28	12
Kerala	20	9
Madhya Pradesh	40	16
Maharashtra	48	19
Manipur	2	1
Meghalaya	2	1
Mizoram	1	1
Nagaland	1	1
Orissa	21	10
Punjab	13	7
Rajasthan	25	10
Sikkim	1	1
Tamil Nadu	39	18
Tripura	2	1
Uttar Pradesh	85	34
West Bengal	42	16
Andaman & Nicobar Islands	1	-
Chandigarh	1	-
Dadra and Nagar Haveli	1	-
Daman and Diu	1	-
Delhi	7	3
Lakshadweep	1	-
Pondicherry	1	1

Council of Ministers on former's advice but deciding that which one is the majority party in the Legislative Assembly, comes under his discretion. All other officials at important posts are appointed by him. He has the power to recommend to the President, that the government of the state is not functioning in accordance with the constitutional machinery and this leads to President's rule in the state under Art. 356.

## NATIONAL NETWORK

Regarding legislative powers the Governor can summon or prorogue either House of the state legislature and dissolve the state Legislative Assembly. He addresses the first session of the state legislature after the general elections. He can send message to state legislature on bills pending before it. He appoints one sixth members of Legislative Council and can nominate certain members of the Anglo Indian community to Legislative Assembly if he thinks it doesn't have adequate representation in the Assembly. A bill passed by state legislature can become a law only with his assent. He can reserve certain types of bills passed by the legislature for Presidential assent. He makes law through ordinances where either House of the Parliament is not in session but these are to be confirmed by the state legislature within six weeks of its reassembly.

Under his financial powers the Governor ensures that the state budget is laid before the state legislature every year. Money Bills can be introduced in the Legislative Assembly only with his prior permission.

Under his judicial powers, the Governor is consulted by the President while appointing the

Chief Justice and the judges of the High Court. He appoints the judges of the district and other courts. He can grant pardon, reprieve, respite or remission of punishments to persons convicted of an offence against state laws.

The Governor receives the report of the Auditor General of state pertaining to the accounts of the state and places it before the state legislature. He also places in the legislature the report of the state public service commission. As chancellor of the universities within the state, he appoints vice chancellors of these universities.

Governors position in the political system doesn't remain a mere constitutional head in the sense that in a situation of no party having clear majority in the Legislative Assembly, the Governor in his discretion is to determine as to which party is able to prove majority in the House. Moreover, it is also under his discretion to determine whether the state is running under the constitutional machinery and to recommend president's rule in the alternate case. He can seek information from the Chief Minister on any legislative or administrative matter.

### Chief Minister

The Chief Minister is appointed by the Governor. The Chief Minister allocates portfolios among the Council of ministers and can reshuffle the ministry. He coordinates the working of various ministers and ensures that the council works as a team. The Chief Minister of a state occupies a prominent position in the state machinery. He is the chief link between the Governor and the council of ministers and keeps the Governor informed of all decisions of the council. The Chief Minister takes leading part in the deliberation of the state legislature, and defends the policies of his government in the House. He can recommend the dissolution of the Legislative Assembly to the Governor even before expiry of the term.

### The State Legislature

The state legislature consists of the Governor and the House or Houses of the state. A

### Lok Sabha (LS) and the Speakers of the House

S	Speaker(s) Name	Duration
1	G V Mavalankar	15 May 1952 - 27 Feb 1955
	M A Ayyangar	8 March 1956 - 10 May 1956
2	M A Ayyangar	11 May 1957 - 6 April 1961
3	Hukam Singh	17 April 1962 - 16 March 1964
4	N Sanjiva Reddy	17 March 1967 - 19 July 1967
	Dr. G S Dhillon	8 Aug 1969 - 19 March 1971
5	Dr. G S Dhillon	22 March 1971 - 1 Dec 1971
	Balram Bhagat	5 Jan 1976 - 25 March 1977
6	N Sanjiva Reddy	26 March 1977 - 13 July 1977
	K D Hegde	21 July 1977 - 21 Jan 1980
7	Dr. Balram Jakhar	22 Jan. 1980 - 15 Jan 1981
8	Dr. Balram Jakhar	16 Jan 1985 - 18 Dec 1985
9	Rabi Ray	19 Dec. 1989 - 9 July 1991
10	Shivraj Patil	10 July 1991 - 22 May 1996
11	P.A. Sangma	23 May 1996 - March 1999
12	G.M.C. Balyogi	March 1998 - Oct. 1999
13	G.M.C. Balyogi	Oct. 1999 - Till date

present only five states have bicameral legislature-Bihar, Jammu & Kashmir, Karnataka, Maharashtra and Uttar Pradesh. Legislature councils can be created or abolished through a simple act of Parliament on the recommendation of the Legislative Assembly.

The Legislative Assembly is the popularly elected house of the state legislature. Its minimum strength should be 60 and maximum should not exceed 500, through the Legislative Assemblies of Sikkim, Mizoram etc. have less than 60 members. The Assembly has a five year term which can be cut short by its dissolution on the basis of Governor's decision or could be extended by one year at a time by Parliament during national emergency.

The Legislative Council is the Upper House of the state legislature and contains various categories or members. It has (a) one third members elected by Legislative Assembly (b) one third members elected by local bodies (c) one twelfth members elected by university graduates (d) one twelfth members elected by teachers and one sixth members nominated by the Governor of the state.

**Legislative procedure :** Regarding money bills, some provisions are laid down by the Constitution as in the case of Union Parliament. The Legislative Council in the state can only make recommendations regarding it and can hold the money bill for 14 days. Ultimately, the bill of the Legislative Assembly prevails regarding the money bill. Regarding the non-money bills, the Legislative Council can hold a bill passed by the Legislative Assembly for not more than three months within which it can send the bill to the Lower House with suggestions if it feels necessary. If the Legislative Council doesn't send back the bill within three months time or it rejects the bill passed by the Assembly, there is no provision of a joint session as in the case of Parliament. The bill in such case will be deemed to be passed by the legislature and is sent to the Governor for assent. In this way the second chamber in the state have much less power than the upper chamber in the Parliament.

### Membership of Legislative Assemblies and Legislative Councils

States	Legislative Assembly	Legislative Council
Andhra Pradesh	294	Nil
Assam	126	Nil
Bihar	324	96
Gujarat	182	Nil
Haryana	90	Nil
Himachal Pradesh	68	Nil
Jammu and Kashmir	76	36
Karnataka	224	75
Kerala	140	Nil
Madhya Pradesh	320	Nil
Maharashtra	288	78
Manipur	60	Nil
Meghalaya	60	Nil
Nagaland	60	Nil
Orissa	147	Nil
Punjab	117	Nil
Rajasthan	200	Nil
Sikkim	32	Nil
Tamil Nadu	234	Nil
Tripura	60	Nil
Uttar Pradesh	425	108
West Bengal	294	Nil
Goa	40	Nil
Mizoram	40	Nil
Arunachal Pradesh	40	Nil
Pondicherry	30	Nil

**Privileges :** The state legislature has privileges similar to those of Union Parliament and the constitutional provisions relating to them are identical. It has the power of punishing for breach of its privileges or contempts of the legislature. It is the sole judge regarding how and where its privileges have been breached and courts have no jurisdiction to interfere with the decision of the state legislature on this point.

### Judiciary

#### The Supreme Court

The Supreme Court consists of a Chief Justice and other judges. The Chief Justice is



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appointed by the President in Constitution with such judges of the Supreme Court and High Courts as he deems necessary. The other judges of the Supreme Court are appointed by the President in Constitution within the Chief Justice and other judges of Supreme Court and High Court if the President finds it necessary.

To be appointed a judge of the Supreme Court, a person must have been a judge of High Court or of two such courts in succession for five years, or an advocate of High Court for at least 10 years and is in the view of the President a distinguished jurist of the country.

The judges of the Supreme Court hold

office till the age of 65 years. They can relinquish office earlier by addressing their resignation to the President. They can be removed from the office by the President on grounds of proved misbehaviour and incapacity, on the basis of a resolution passed by the Parliament.

Certain provisions in the Constitution ensure the independence of judges. Their salaries and allowance are charged on the consolidated fund of India and are thus not subject to a vote of Parliament. Their salaries and service conditions cannot be changed to their disadvantage during this tenure. Their removal is possible only by the President on the basis of a resolution by the two Houses of the Parliament separately by a special majority.

### Chief Justices of India

Name	Tenure
Harilal J. Kania	26.1.1950 - 6.11.1951
M. Patanjali Sastri	7.11.1951 - 3.1.1954
Mehar Chand Mahajan	4.1.1954 - 22.12.1954
B.K. Mukherjee	23.12.1954 - 31.1.1956
S.R. Das	1.2.1956 - 30.9.1959
B.P. Sinha	1.10.1959 - 31.1.1964
P.B. Gajendragadkar	1.2.1964 - 15.3.1966
A.K. Sarkar	16.3.1966 - 29.6.1966
K. Subba Rao	30.6.1966 - 11.4.1967
N. Wanchoo	12.4.1967 - 24.2.1968
Daya Lall	25.2.1968 - 16.12.1970
Indrajit	17.12.1970 - 21.1.1971
Sikri	22.1.1971 - 27.1.1977
N. Ray	26.4.1973 - 21.2.1978
Y.V. Chandrachud	22.2.1978 - 20.12.1986
P.N. Bhagwati	12.7.1985 - 20.12.1986
R.S. Pathak	21.12.1986 - 18.6.1989
E.S. Venkataramiah	19.6.1989 - 17.12.1989
S. Mukharjee	18.12.1989 - 25.9.1990
Ranganath Mishra	26.9.1990 - 24.11.1991
K.N. Singh	25.11.1991 - 12.12.1991
M.H. Mania	13.12.1991 - 17.11.1992
L.M. Sharma	18.11.1992 - 11.2.1993
M.N. Venkatachaliah	12.2.1993 - 24.10.1994
A.M. Ahmadi	25.10.1994 - 24.3.1997
J.S. Verma	25.3.1997 - 17.1.1998
M.M. Punchhi	18.1.1998 - 9.10.1998
A.S. Anand	10.10.1998 - till date

### Jurisdiction of the Supreme Court

**Original Jurisdiction :** Certain types of cases can originate only with the Supreme Court. These relate to dispute between centre and a state or states or between two or more states.

**Appellate Jurisdiction :** The Supreme Court is the highest court of appeal in the country. Generally, four types of cases fall within the jurisdiction of the Supreme Court: constitutional, civil, criminal and such a case where it may grant special leave to appeal. Usually appeals can be taken to the Supreme Court if the case involves a substantial question of law regarding interpretation of Constitution. Regarding criminal cases, an appeal automatically comes to the Supreme Court when (a) the High Court on an appeal has reserved an order of acquittal of an accused person and sentenced him to death or (b) where the High Court withdraws for trial before it self, any case from any court subordinate to its authority and has in such trial convicted the accused and sentenced him to death.

**Advisory Powers :** The President may ask the Supreme Court to render advice on any legal or other matter whenever he thinks it necessary. Though such advice is not binding on the President, it is respected by the lower courts as precedent.

**Court of record :** The Supreme Court is also a court of records and in this capacity it also enjoys the power to punish for its contempt.

Among its other powers the Supreme Court can make rules regarding the practice and procedure of the court with the approval of the President. It also took into disputes regarding the election of President and Vice President.

**Power of judicial review :** The Constitution gives to the Supreme Court, the power of judicial review which implied that it can review laws passed by the legislature and order issued by the executive to determine their constitutionality. It can declare and void any legislature formulation or executive action if it finds them against the provisions of the Constitution.

The Supreme Court's power of judicial review has led to a continuous tug of war between the Supreme Court on the one hand and the Parliament on the other. In *Golaknath Vs State of Punjab Case-1967*, the Supreme Court held that the Parliament could not amend the Fundamental Rights under part III of the Constitution. In the *Bank Nationalisation and 'Privy Purses Case'* which came up during the same time, the Supreme Court held similar views.

The Parliament on its part, through 24th Amendment in 1971, assumed for itself, the power to amend the Fundamental Rights. Subsequently, the 25th Amendment held that its measures are taken to implement the Directive Principles under Article 39 (b) and (c) enjoying upon the state to prevent concentration of wealth and regulate economy to ensure public good. The Supreme Court could not question their validity on the grounds of infringement of the Fundamental Rights. The Parliament's power to amend Fundamental Rights was confirmed by the Supreme Court in the *Keshavanand Bharali case 1973*. The 42nd Amendment of the Constitution in 1976 further curtailed the authority of Judicial Review of the Supreme Court. The matters relating to constitutional amendment were placed beyond the review of the Supreme Court's power of judicial

review. Moreover, the priority given to Directive Principles under Art. 39 (b) and (c) in the 25th Amendment was now extended to all Fundamental Rights.

However, in the *Minerva Mill case 1980*, the Supreme Court held that the unlimited and unchecked power of the Parliament to amend the Constitution infringes the basic structure of the Constitution. Moreover, it also strikes down the superiority given to all Directive Principles over the Fundamental Rights and accepted the position under 25th Amendment only. The Parliament and the apex judicial body of the country still remain on their respective stands.

## High Court

Under the Constitution, there shall be a High Court in each of the states. However, the Parliament has the power to establish common High Court for two or more states. Punjab, Haryana and the Union Territory of Chandigarh have a common High Court. Similarly, Assam, Nagaland, Manipur, Meghalaya, Tripura, Arunachal Pradesh and Mizoram have a common High Court.

The High Court consists of a Chief Justice and other judges as the President may determine from time to time. The Chief Justice of a High Court is appointed by the President in consultation with the Chief Justice of India and the Governor of that state. In appointing the other judges of the High Court, the President also consults the Chief Justice of the High Court. To qualify for appointment as a High Court judge, a person should have been an advocate of a High Court or of two or more such courts in succession for at least 10 years or should have held judicial office in Indian territory for a period of at least 10 years.

The judges of the High Court hold office till the age of 62. Before that they could quit by giving resignation to the President, they can be removed by the President on the ground of proved misbehaviour and incapacity only if the Parliament passes a resolution for this with a special majority.

## Jurisdiction and Seats of High Courts

Name	Year of Establishment	Territorial Jurisdiction	Seat
Allahabad	1866	Uttar Pradesh	Allahabad (Bench at Lucknow)
Andhra Pradesh	1954	Andhra Pradesh	Hyderabad
Bombay	1862	Maharashtra, Dadra and Nagar Haveli, Goa, Daman and Diu	Bombay (Bench at Nagpur, Panaji and Aurangabad)
Calcutta	1862	West Bengal and Andaman and Nicobar Islands	Calcutta (Circuit bench at Port Blair)
Delhi	1966	Delhi	Delhi
Guwahati	1948	Assam, Manipur, Meghalaya, Nagaland, Tripura, Mizoram and Arunachal Pradesh	Guwahati (Bench at Kohima and Circuit benches at Imphal, Agartala and Shillong)
Gujarat	1960	Gujarat	Ahmadabad
Himachal Pradesh	1971	Himachal Pradesh	Shimla
Jammu and Kashmir	1957	Jammu and Kashmir	Srinagar and Jammu
Karnataka	1884	Karnataka	Bangalore
Kerala	1956	Kerala and Lakshadweep	Ernakulam
Madhya Pradesh	1956	Madhya Pradesh	Jabalpur (Benches at Gwalior and Indore)
Madras	1862	Tamil Nadu and Pondicherry	Madras
Orissa	1948	Orissa	Cuttack
Patna	1916	Bihar (Patna)	(Bench at Ranchi)
Punjab and Haryana	1966	Punjab, Haryana and Chandigarh	Chandigarh
Rajasthan	1950	Rajasthan (Jodhpur)	(Bench at Jaipur)
Sikkim	1975	Sikkim	Gangtok

The Constitution ensures the independence of the High Court judges in the same manner it does for the judges of the Supreme Court. The removal of High Court judges has the same procedure as in the case of a Supreme Court judge. Their salaries are not votable and are charged on the consolidated fund of the State. Their salaries etc. are not to be varied to their disadvantage after their appointment. It is also laid down that after retirement, a High Court judge shall not plead or act in a court or before any Court and a High Court other than the High Court in which he has held the office.

**Powers :** (a) The High Court is the highest court of appeal in the state in both civil and criminal matters. (b) It exercises supervision over the working of courts and tribunals within its jurisdiction

and ensures that the lower court discharge the duties properly. (c) It can withdraw a case pending before a subordinate court and may itself dispose of the case or determine the question of law involved in the case or can recommend to the Supreme Court for the latter's appellate jurisdiction. (d) The High Court issues writs for the enforcement of Fundamental Rights under Art. 226.

### Indian federalism and centre-state relations

The Constitution makers devised a federal set up for India and inserted in the Constitution the main features of federalism which are (a) clear division of powers between the centre and the federal units and (b) the existence of an independent and supreme judiciary to interpret the

Constitution and to settle disputes between the Centre and the States.

However, inspite of the presence of the essential federal features, the Indian Constitution is said to be bent in the favour of the centre and it present a system which is federal in appearance and unitary in character. It will be relevant to have a look at the Union-State relations and other provisions of the Constitution to affirm this.

**Legislative relations between Centre and States :** There are 97 important subjects like foreign relations defence currency, foreign trade etc, on which only the parliament can make laws. In the State list there are 66 subjects, mainly of local importance like police, local self government, jail, health irrigation etc. on which the state legislature can make laws. The third one is the concurrent list which includes 47 subjects like population control and family welfare, penal system, social security, newspaper etc. Both the centre and the states can make laws on the subjects from the concurrent list, but the states should make sure that the laws made by them regarding these are in conformity with the central laws. The Indian Constitution gives the residuary powers, which are not mentioned in any of the 3 lists mentioned above, to the centre.

**Administrative Relations :** The centre mainly depends on the state administrative machinery to implement the decision and policies it formulates. Secondly, the centre holds its control over the state administration through appointment made by it under all-India services. Similarly, there is a single integrated judicial system in India in which the judges of both the Supreme Court and High Courts are appointed and removed by the President of India. To ensure better coordination between the centre and the states, the President may appoint advisory Inter-State Councils. Moreover, the centre and the states may delegate to each other, their administrative powers and functions to ensure cooperation and understanding.

**Financial Relations :** Under Art. 280 of the Constitution, the President shall appoint a Finance Commission every 5 years to determine the distribution of taxes between the centre and the states. The taxes which are distributed between the centre and the states are (a) those wholly under centre-like customs and corporation tax, surcharge on income corporation tax, surcharge on income tax (b) taxes wholly under states like revenue, stamp, duty, taxes on cattles, boats, vehicles etc. (c) taxes levied by centre but collected and appropriated by states like stamp duties on exchange bills. (d) taxes which are levied and collected by the centre but given to the states like terminal taxes, taxes related to advertisements in newspapers etc. (e) taxes which are levied and collected by the centre but are distributed between the centre and the states like taxes on income other than agricultural income

Apart from these, Grants-in-Aids are given by the centre to the states from time to time under Art. 275 of the Constitution.

However, with the beginning of planned development and the increasing role of the Planning Commission in the planning process non-statutory financial transfers from the centre to the states have been on the rise.

The centre has authority to raise resources like issuing treasury states do not possess. Finally with the declaration of financial emergency by the President under Art. 360 the statutory financial transfers to the states may be curtailed and financial instructions also may be sent to the states.

**Other provisions of the Constitution for making the centre strong :** Under the Art 3 of the Constitution, the Parliament, through a simple process of amendment can alter the boundaries of the state and can create a new state also

With the declaration of National Emergency under Art 352 and President's rule in the states under Art 356 the Central Legislature has the power to make laws on the State subjects

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The Rajya Sabha under Art. 249 may enable the Parliament to make laws on a subject from the State list. The Rajya Sabha under Art. 312 can also recommend for creating more all-India services.

Under Art. 256 and Art. 257 administrative directives are given by the centre to the states from time to time which are obligatory for them in case of failure of the constitutional machinery in the states.

The Governor, who is appointed by President to determine whether the governance of the state runs under the frame-work of the Constitution and to recommend President's rule if he finds that there is a breakdown of the constitutional machinery in the state.

The Indian Constitution doesn't give equal representation to the states in the second chamber as it is in other federal systems of the world. There is also single Constitution for both centre and states and single citizenship under the Constitution. Moreover, compared to the federal system of USA, Australia etc. the amending procedure is much more simple under the Indian Constitution and the centre can increase its powers through amendments.

**Demand for greater autonomy and Sarkaria Commission report :** In view of the vast and deciding powers given by the Constitution to the centre and in reaction to a general tendency of centralisation of authority by the Government at the centre right from the inception of the Constitution, there have been demands for greater autonomy by the states. Their demands gained momentum in the early 80's with the rise of a number of regional parties at the helm of political affairs of a substantial number of states. In view of the growing pressure for greater autonomy, in June 1983, the Union Government appointed a commission under the chairmanship of Justice Sarkaria to review the question of centre state relations.

The Sarkaria Commission report, published

in early 1988, expressed itself in favour of a strong centre and at the same time recommended a process of dissolution of authority from the centre to the states. The report suggests that (1) the Chief Ministers' consent should be taken in appointing Governor and a person with active local political background should not be appointed as Governor. (2) State Legislative Assembly should not be dissolved under President's rule under Art. 356 unless it is approved by the Parliament. It favours the retention of National Development Council and suggests activation of Zonal Councils. Then a commission is in favour of determination of terms of reference of finance commission in consultation with the state governments. It also suggests setting up of similar expert bodies at the state level. (4) The commission also makes a strong case for setting up of Inter-state Council by the President under Art. 263 of the Indian Constitution to inquire into and advise upon disputes which may arise between states, to investigate and discuss subjects in which the Union and state have common interest and to make recommendations for any such subjects for the better coordination of policy and action with aspect to that subject. In pursuance of this suggestion of the commission a notification was issued by the President in June 1990 for constituting an inter-state Council consisting of the Prime Minister, six cabinet and Union Territories as a forum for dialogue to ensure better coordination between centre and states.

### Emergency provision

The Indian Constitution incorporates some emergency provisions which gives the government at the centre, extraordinary powers in some special circumstances.

### The National Emergency (Art 352)

Under the first category of National Emergency the President may make the promulgation of emergency in a situation of war, external aggression and armed rebellion or before t

occurrence of such situation. Such proclamation is made by him only when union cabinet ministers headed by the Prime Minister give to him in writing for this. Every such proclamation must be laid before both Houses of parliament and shall cease to operate unless it is approved by resolution of both Houses within one month of its issue. If the Lok Sabha is dissolved at the date of issue or proclamation or within one month thereof, the proclamation may survive House until its reconstitution provide Rajya Sabha in the meantime has approved it by a resolution. A fresh a lease of after every six months is necessary for the continuation of such emergency. Special majority in both the Houses separately is needed for this.

Such a proclamation enables the centre to exercise the executive and legislative powers of the State. Though the state legislature and government are not suspended the governance of the state comes under the direct control of the centre. The Parliament's term during such emergency can be extended up to six years by not extending in any case beyond period of six months after the proclamation has ceased to operate. The Fundamental Rights under Art.19 are automatically suspended with such a proclamation. The President may issue a further order to suspend other Fundamental Rights except those under Art. 20 and 21.

**The State Emergency or President's Rule under Art. 356 :** Emergency in a state is proclaimed if the President is satisfied that the state machinery is not operating in conformity to the Constitutional provisions.

As a result of such proclamation, the President may assume all the state executive powers except High Court. The legislative authority of state may be extended to Union legislatures when the Lok Sabha is not in session. The President may authorise expenditure from the consolidated fund of the State pending the sanction of such expenditure from parliament. The President has also

the power to promulgate ordinances for the administration of state when Parliament is not in session.

Such an emergency is declared ordinance for two months. If the proclamation was made at the time of dissolution of the Lok Sabha or if Lok Sabha is dissolved during the period of two months from the issue of such proclamation, it would cease to operate on expiry of 30th day from the date on which the Lok Sabha first met. The two months duration of such proclamation can be extended by resolution passed by both Houses for a period of six months at a time subject to a maximum duration of 3 years. If the duration sought beyond one year, two conditions are necessary (a) emergency should have been declared in any other part of the country and (b) the Election Commission should certify that the conditions to hold elections are not there in the state.

### Financial emergency (Art. 360)

Such a proclamation is made by the President if he is satisfied that financial stability and credit of India or any part thereof is endangered. Under such proclamation, the executive authority of the centre will extend to observe such canons of financial propriety as may be specified in the directions. State Money and Financial Bills may be reserved for President's consideration under such proclamation. The reduction in salaries of or any class of people serving in Union or state including the judges of Supreme Court and High Courts is possible under such proclamation.

### Jammu and Kashmir

The Indian Constitution accords special status to the state of Jammu and Kashmir. Article 370 of the Constitution refers Jammu and Kashmir as the part of the territory of India. Under Art. 370 the powers of the Parliament to make laws for the state shall be limited to those matters in the Union list and the Concurrent list which in concurrence with the government of the state are declared

the President to correspond to matters specified in the Instrument of Accession (defence, external affairs, communications) and such other matters in the said lists with the concurrence of the state the President may by order specify.

The residuary power in respect of Jammu and Kashmir rest with the state government and not the Union government. Certain special rights have been granted to the permanent resident of the state of J and K in relation to acquisition of property, employment, residence etc. The centre cannot alter the name or boundaries of the state nor it can conclude any international agreement affecting the state without the consent of the state legislature

There have been changes in the special status of the state of J and K since the inauguration of the Constitution. In 1964, Art. 356 was extended to the states and the President was authorised to take over the administration of the state in his hands in the eventuality of breakdown of constitutional machinery. In 1965, the head of the state of J and K was redesignated Governor (instead of Sadar-i-Riyasat) and the head of the government of the state was designated Chief Minister from what was called Prime Minister of the state

A separate Constitution was created for the state of J and K by a Constituent Assembly appointed by the state and came into force from January 26, 1957

The Constitution vests the executive powers of the state with the Governor, appointed by the President. The Governor holds a constitutional position and acts on the advice of the council of ministers headed by the Chief Minister

The Constitution of the state provides a bicameral legislature consisting of Legislative Assembly and Legislative Council. The Assembly is a popular House consisting of 100 members elected by the people on the basis of universal adult franchise. The council consists of 36 members out of which eleven are elected by

the assembly from among the people of Kashmir and from among the people of Jammu. Six members are elected by municipal councils, educational institutions etc. and the rest are nominated by the Governor. The Governor is also part of the state legislature. The Constitution of the state declares Urdu to be the official language of the state but permits the use of English for official purposes unless the state legislature provides otherwise.

### Key functionaries

#### Comptroller and Auditor General of India

The Comptroller and Auditor General of India is the guardian of Public finances of the Union Government. His office is created by the Constitution. He is appointed by the President and holds office for a term of six years or till he attains the age of 65 years. The provisions regarding his relinquishing office and removal are the same as in the case of Supreme Court judges. The Independence of the Comptroller and Auditor General is ensured in the same manner as in the case of Supreme Court judges.

The Comptroller and Auditor General ensures that the appropriations made by parliament are done with proper sanction and expenditure is incurred with due wisdom, faithfulness and economy. He submits in respect of Union accounts and to the Governor in respect of the accounts of the state. His report is then placed before the Public Accounts Committee.

#### Attorney General

The Attorney General is the first law officer of the Government of India. He is appointed by the President and holds office during the President's pleasure. He must have the same qualification as required to be a judge of the Supreme Court. He gets such salaries remunerations as the President may determine.

The Attorney General gives advice on legal matters and performs such other duties of legal character which are assigned to him by the President. He is not a member of the cabinet but has a right to speak in the cabinet, in the Houses of Parliament or in any committee thereof but no right of vote. In performance of his official duties, he shall have a right of audience in all courts in the territory of India.

### Election Commission

In order to supervise the entire procedure and machinery for election and the appointment of election tribunals and for some other ancillary matters, the Constitution provides for an Election Commission as an independent body under Art. 324.

The Election Commission consists of the Chief Election Commissioner and as many other election commissioners as the President may from time to time fix.

The main functions of the Election Commission are (i) preparing electoral rolls and revising them after every census and before every general election to Union and state legislatures. (ii) to supervise the machinery of elections throughout the country. (iii) to notify dates and schedules of elections so that nomination papers are filled and scrutinised before the election. (iv) to settle disputes regarding electoral arrangements and giving of polling stations in the event of mass scale rigging or other irregularities (v) to advise the President or the Governor regarding the disqualification of a legislator. (vi) to suggest to the President to appoint regional commissioners and other staff for assisting the Election Commission on the eve of a general election to the Lok Sabha or to the state legislature.

### The Community Development Programme

With a view to develop a spirit of self reliance among the small people and to cultivate a

spirit of initiative in the village community through peoples participation in the process of planned development, the Community Development Programme was launched on October 2, 1952. The Programme was evolved as programme of aided self help to be planned and implemented by villagers themselves with the government providing necessary technical guidance and financial assistance.

The main objective of the Community Development Programme was to make proper use of the vast unexploited resources in the countryside and to make proper use of the unutilised energy in the villages. It also aimed at encouraging greater employment and production through giving emphasis on scientific methods of agriculture and development of cottage and small scale industries. It also hoped to inculcate a spirit of self help among rural people, by organising developmental work through representative institutions like panchayats, cooperative societies etc. It was also to provide greater amenities to villagers through voluntary contribution of labour.

The Community Development Programme was designed to improve agriculture through better irrigation facilities, provision of improved seeds and fertiliser and adoption of scientific techniques of cultivation etc. Its programmes also included better transport and communication and linking of every village with main road and promotion of primary, secondary and as well as adult education. Promotion of health and sanitation, development of cottage and small scale industries, better housing facilities and special measures for the welfare of women and children were also included.

To implement this programme an elaborate organisation has been provided, at the top of which is central committee headed by the Prime Minister. The members of the Planning Commission, the minister for food and agriculture and the minister for community development are also associated with this. There are also officials at the Block and Village levels responsible for the implementation



of Community Development Programme. This programme is carried out in units of blocks. A block roughly consists of about 100 villages, covering an area of 150 to 200 square miles and a population of 60,000 and 70,000.

The results of this programme however, have not been encouraging as it was thought in the beginning that people lacked enthusiasm to participate in developmental programmes. Mixing up of the local politics and a general backwardness and lack of consciousness are responsible for slow progress in various directions. However, it can't be denied that the Community Development Programme has created a desire among the people to improve their standards of living and has greatly contributed to improvements in agriculture and community works.

**Panchayati Raj :** Panchayati Raj institutions are based on the idea of democratic decentralisation which envisages people's participation in the governance at the local levels.

The Balwant Raj Mehta Committee, 1956, which was constituted to enquire into and give recommendations regarding the Panchayati Raj institutions, proposed a three tier system, consisting of (a) village panchayats at village level formed by the inclusion of Gram Sabha, Gram Panchayat and Nayaya Panchayat (b) Panchayat Samities at block levels to monitor the developmental work carried forward by the government and (c) Zila Parishad at district level consisting of representatives of Panchayat Samities, MPs and legislators of the district with the functions of coordinating between the Panchayat Samities and giving suggestions to the state regarding developmental activities in the district.

Rajasthan and Andhra Pradesh were the first two states to implement the recommendations of the committee fully. It was adopted by other states in different forms.

However, in 1950s a number of factors like severe strain on resources due to war with China, shortage of foodgrains and over emphasis on

agricultural production with the role of new technology ignoring other aspects of Panchayati Raj system and a growing tendency of centralisation led to the waning of the Panchayati Raj system in the country.

In 1977, another committee to enquire into the role of Panchayati Raj institutions under the chairmanship of Ashok Mehta was constituted. This committee proposed a two tier structure, at the base of which would be mandal panchayat consisting of a number of villages and at the apex, the Zila Parishad. There would be reservation of seats for SCs, STs and women. The committee recommended that the Panchayati Raj institutions should have taxing powers and there should be no interference in this functioning by the state government.

In 1989, the Congress Government proposed through an amendment of Constitution holding Panchayati Raj elections under the supervision of Election Commission, appointment of the Finance Commission by the centre to regulate taxes and grants-in-aids and introduction of audit of Panchayati Raj institutions accounts by the comptroller and Auditor General who was to submit his report to the Governor. These proposals were seen by many observers as an attempt to establish centre control in Panchayati Raj affairs, encouraging a process of centralisation. The Amendment Bill could not be passed due to the lack of required majority in the Rajya Sabha.

There are a number of limitations in the successful working of Panchayati Raj in India. Firstly it is difficult to implement the system in one uniform way in a vast country like India, characterised by great diversities. The Panchayati Raj institutions suffer from the lack of resources. Moreover, politicisation of local administration and entrance of vested interests make it difficult for the Panchayati Raj institutions to function. Finally, illiteracy, backwardness and lack of consciousness among people also come into the way of the

successful working of the Panchayati Raj system in India.

## Some Commissions and Councils

### The Planning Commission

The Planning Commission is sometimes held responsible for giving the maximum strength to the forces of centralisation in the country even while continuing to remain an extra-constitutional body. The Planning Commission, as such is not mentioned in the Constitution. 'Economic and social planning' is a concurrent legislative power (Entry 20, List III). Taking advantage of this Union power, the extra-constitutional and non-statutory body was set up by a resolution (1950) of the Union Cabinet by Prime Minister Nehru, with himself as its first Chairman, to formulate an integrated Five Year Plan for economic and social development and to act as an advisory body to the Union Government, in this behalf. Set up with this definite object, the Commission's activities have gradually been extended over the entire sphere of the administration excluding only defence and foreign affairs, so much so, that a critic has described it as "the economic Cabinet of the country as a whole". Constituted by the Prime Minister and encroaching upon the functions of constitutional bodies such as the Finance Commission and, yet, not being accountable to Parliament, according to critics, the Planning Commission is one of the agencies of encroachment upon the autonomy of the States under the federal system. The extent of the influence of this Commission should, however, be precisely examined before arriving at any conclusion. The function of the Commission is to prepare a plan for the "most effective and balanced utilisation of the country's resources", which would initiate a process of development, which will raise living standard and open out to the people new opportunities for a richer and more varied life. It is obvious that the business of the Commission is only to prepare

the plans: the implementation of the plans rests with the States because the development relate to mostly State subjects. There is no doubt that at the Union level, the Planning Commission has great weight, having the Prime Minister himself as its Chairman. But so far as the States are concerned, the role of the Commission is only advisory. Whether influence it exerts is only indirect, in so far as the States strive with each other in having their requirements included in the national plan. After that is done, the Planning Commission can have no direct means to securing the implementation of the plan. If, at that stage, the States are obliged to follow the uniform policy laid down by the Planning commission, that is because the states cannot do without obtaining financial assistance from the Union. But there is justification behind the criticism that there is overlapping of work and responsibility owing to the setting up of two high-powered bodies, viz., the Finance Commission and the Planning Commission; the Administration Reforms Commission has commented upon it.

### National Development Council

The working of the Planning Commission, again, has led to the setting up of another extra-constitutional and legal body namely, the National Development Council which was formed in 1952 as an adjunct of the Planning Commission, to associate the States in the formulation of the Plans. Constituted of the Union Prime Minister and the Chief Ministers of States, (since 1967 all the Union Cabinet Ministers and Administrators of Union Territories also) the functions of the Council are "to strengthen and mobilize the efforts and resources of the nation of support of the plans; to promote common economic policies in all vital spheres and to ensure the balanced and rapid development of all parts of the country" and in particular, (a) to review the working of the National Plan from time to time, (b) to recommend measures for the achievement of the aims and targets set out in the National Plan

## NATIONAL NETWORK

It is interesting to note that there is no body analogous to the Planning Commission at the state level though generally there are Planning Departments and sometimes Development Commission in the states. All Planning is at the Union level and it is the responsibility of the states to implement the plans. There is no doubt that the states have gained immensely, not only in the matter of economic development but also in social activities like education, literature, art and sports, but their constitutional autonomy has certainly been affected due to their financial dependence on the Union.

### Union-Zonal Councils

Zonal Councils have been established by the State Reorganization Act 1956. They are advisory bodies to advise on matters of common interest to each of the five zones into which the territory of India has been divided such as Northern, Southern, Eastern, Western and Central. It should be remembered that these Zonal Councils do not owe their origin to the Constitution but to an Act of Parliament. They have been introduced by the States Reorganization Act, as a part of the scheme of reorganization of the State with a view to securing co-operation and co-ordination between the States, the Union Territories and the Union, particularly in respect of economic and

social development. The presence of the Union Ministers, nominated by the Union Government, in each of these councils (and the Chief Minister of the States concerned) also further co-ordination and national integration through an extra-constitutional advisory organization, without undermining the autonomy of the States. Each Zonal Council consists of the Chief Minister and two other Ministers of each of the State in the Zone and the Administrator in the case of the Union Territory. There is also provision for holding joint meetings of two or more zonal Councils. The Union Home Minister has been nominated to be the common chairman of all the zonal Councils.

The Zonal Councils discuss matters of common concern to the states and Union Territories comprised in each Zone, such as, economic and social planning, border disputes, inter-state transport, matters arising out of the reorganization of States and the like, and give advice to the Government of the State concerned as well as the Government of India.

Now the whole of India is divided under 6 Zones and the states covered under each zone are as follows :

**Eastern Zone :** Bihar, Orissa, West Bengal, Sikkim

**Western Zone :** Gujarat, Maharashtra, Goa, Daman, Diu and Dadra and Nagar Haveli.

**Northern Zone :** Punjab, Haryana, Himachal Pradesh, J & K, Rajasthan, Chandigarh and Delhi

**Southern Zone :** Andhra Pradesh, Kerala, Karnataka, Tamil Nadu and Pondicherry.

**Central Zone :** U.P. and M.P.

**North Eastern Zone :** Assam, Meghalaya, Nagaland, Manipur, Tripura, Mizoram, Arunachal Pradesh

### River Board

The River Boards Act, 1956, provides for the establishment of a River Board for the purpose of advising the Governments interested in

### Chief Election Commissioners of India

Name	Tenure
Sukumar Sen	21.3.1950 - 19.12.1958
K.V.K. Sundaram	20.12.1958 - 30.12.1967
S.P. Sen Verma	1.10.1967 - 30.9.1972
Dr. Nagendra Singh	1.10.1972 - 6.2.1973
T. Swaminathan	7.2.1973 - 17.6.1977
S.L. Shastri	18.6.1977 - 17.6.1982
R.K. Trivedi	18.6.1982 - 31.12.1985
R.V.S. Peri Sastri	1.1.1986 - 25.11.1990
Smt V.S. Rama Devi	15.11.1990 - 12.12.1990
T.N. Seshan	12.12.1990 - 11.12.1996
M.S. Gill	12.12.1996 - till date

relation to the regulation or developments of an inter-State river or river valley.

### Water disputes tribunal

The Water Disputes Act, 1956, provides for the reference of an inter-state for the dispute for arbitration by a Water Disputes Tribunal, whose award would be final according to Art. 262 (2A).

### National Security Council

On August 24, 1990, the Prime Minister Mr. V.P. Singh announced the formation of National Security Council to take comprehensive and co-ordinated view of all matters relating to the country's security.

The National Security Council will be headed by the Prime Minister and will include the ministers of Defence, Finance, Home Affairs, External Affairs, Other Union Ministers and Chief Ministers would be associated with as and when necessary.

The council would invite experts and specialists to attend its meetings. The need for a council is necessary due to the changing external geostrategic environment and the internal situation in the country.

Following are the subjects to be considered by the council :

External threats scenario strategic defence policies.

Other security threats, especially those involving energy, space and high technology.

Internal security covering insurgency, counter-terrorism and counter intelligence.

Patterns of alienation likely to emerge within the country, especially those with a social, communal or regional dimension.

Security implications of evolving trends in the world economy on India's economic and foreign policies.

External economic threats in areas such as energy, commerce, food and finance.

But not so much initiative has been taken on this matter till now.

### National and regional parties

A new part has been added to Representation of the people (Amendment) Act, 1988 (Part-IVA) on registration of political parties. It provides for registration with the Commission of associations and bodies of individual citizens in India as political parties for purposes of this Act. Every application for registration is required to be classified : (a) If the association of body is in existence at commencement of the Representation of the People (Amendment) Act 1988, it shall apply within sixty days following such commencement, and (b) if the association or body is formed after such commencement, it shall apply within thirty days following its formation. This provision came into force from 15th June 1988. A recognised political party has been classified either as a national party or as a state party under the Election Symbols (Reservation and Allotment) Order, 1968.

### Electoral reforms

The Constitution (Sixty-first Amendment) Act, 1988 amends Article 326 by substituting the words 'eighteen years' for 'twenty one years'. This came into force on 28<sup>th</sup> March 1989. Consequent to this amendments were also made in the Representation of the people Act, 1950 and the Representation of the people Act, 1951.

The Representation of the People Act, 1951 was amended to facilitate use of electronic voting machines in elections.

Section 58A has been inserted in the Representation of the People Act, 1951 by Amendment Act of 1989 providing for adjournment of poll on countermanding of elections because of booth capturing. Booth capturing has been defined in section 135A of the Representation of the People Act, 1951. Booth capturing includes among other things : (a) seizure of a polling station or a place fixed for poll by any person or persons making the polling authorities surrender ballot papers or votes.

machines and doing of any other act which affects orderly conduct of elections : (b) taking possession of polling station or a place fixed for poll by any person or persons and allowing only his or franchise and preventing others from voting : (c) threatening any elector and preventing him from going to polling station or a place fixed for poll to cast his vote; (d) seizure of a place for counting authorities surrender ballot papers or voting machines and doing of anything which affects orderly counting of votes, and (e) doing by any person in the service of government, of all or any of aforesaid activities or aiding or conniving at any such activity in furtherance of election prospects of a candidate.

If because of booth capturing result of poll/ result of counting cannot be ascertained with the Election Commission on such report may either declare the poll at the particular polling station as void and appoint a date for fresh poll or countermand election in that constituency.

Section 135A provides penalty for booth capturing which shall be imprisonment for a term of not less than six months which can extend to two years along with fine. Where such offence is committed by a person in the service of Government, he shall be punishable with imprisonment for a term of not less than one year which may extend to three years along with fine.

The Representation of the peoples act 1951 (second Amendment Ordinance was promulgated by the President on January 4. The ordinance which amends the representation of the peoples Act, 1951, has been issued with the objective of preventing the countermanding of Lok Sabha and Assembly elections in the would now be countermanded only in the case of death of candidate belonging to a recognised political party. The ordinance would be applicable throughout the country although it has been issued keeping in view the special circumstances in Punjab.

Again on January 19 the president promulgated an ordinance which reduces the campaign

period for the Lok Sabha and assembly election from a minimum of 20 days to 14 days. It was issued mainly to facilitate smooth conduct of poll in Punjab. It however states that the amendment to sec. 30 of the Representation of the people Act of 1951 will apply to the entire country.

### Anti-Defection Law

A major step towards promoting a healthy parliamentary system of government by checking the menace of defections (Aya Rams and Gay Rams), that is, legislators crossing the floor, quitting the party on whose ticket they were elected and jumping on the band-wagon of the party in power or about to be installed in the coveted seat of power, was taken in January, 1985, in the shape of the Constitution (52nd Amendment) Bill, widely known as the Anti-defection law. The all-too-familiar phenomenon of elected legislators switching loyalty from one party to another had indeed become a great menace to the democratic set-up in the country.

The tiny State of Haryana has the dubious distinction of being a pioneer in this arena. The traffic to and from started in that State as early as 1957.

The most recent cases of defections were reported from Meghalaya, Nagaland, Goa, Gujarat and M.P. In the eastern states, politically motivated defections have transformed the ministerial scene, brought about the downfall of some Chief Ministers and facilitated the formation of new cabinets containing legislators who have switched their loyalty for the sake of office. Mr. Chandra Shekar's short-lived Ministry was described as a government of defectors.

Fifty-Second Constitutional Amendment Act, 1985 envisages curbing of political defection. A member of parliament or state legislature belonging to any political party shall be disqualified for being a member of that house : (a) if he has voluntarily given up his membership of such political party, or (b) if he votes or abstains from

voting in such house contrary to any direction issued by the political party, and such voting or abstains has not been condoned by such political party within 15 days from, the date of such voting or abstention. In the case of an independent member, an elected member shall be disqualified if he joins any political party after such election. In the case of nominated member, he shall be disqualified for being a member of the house if he joins any political party the date on which he takes his seat. This law shall not apply (a) in the case of a split in which at least 1/3 involved; the term 'legislature party' has been defined to mean a group consisting of all the members belonging to that political party in accordance with the said provision: (b) to a situation of 'merger' when atleast 2/3 members of a legislature party merge themselves with another political party; (c) to a person who resigns membership of his party after being elected as the presiding officer of the House and he rejoins the party after laying down that office. It is required that on getting the office of the presiding officer of the House he lives like a non-partyman, it is also required that after laying down that office he must remain either like a non-partyman or rejoin the party on whose ticket he was elected.

Any matter relating to the disqualification of a member of the Union or State legislature shall be decided by the presiding officer of the House. If he himself is involved, then it shall be decided by his immediate successor. The judgement of the presiding officer shall be final and no court shall have the power to question it. The presiding officers of Union and State Legislatures may make rules for the maintenance of registers and other records as to the political parties.

Recently Supreme Court in a significant ruling in the anti-Defection law judgement held that a member of parliament or the state legislature can be disqualified for defying a whip only on two counts that is voting on a motion of confidence or no-confidence and when the matter relates to the

programme and policies of political party.

On the question of disqualification of members after being duly elected, such disputes should be adjudicated by an independent authority namely President or Governor in accordance to the opinion of the Election Commission. As the speaker is dependent on the will of the majority he is not freed from suspicion of bias.

The court held that any direction required to be worded harmoniously with other provisions of the anti-defection law which define and limits the objects of meanings. The voting by a member against the direction of the political party would amount to disapproval of the programme on the basis of which he went before the electorate and got himself elected and such voting or abstention would lead to breach of trust reposed on him by election.

The disqualification imposed by paragraph 2 (1) (b) of the 10th schedule of Constitution must be so worded as not to unduly impinge on the freedom of speech of a member and this would be possible if 2(1) (b) is confined in its scope by keeping in view the object namely to curb the evil or mischief of political defections motivated by the lure of office or other similar consideration

On the issue of split, the meaning to be given must be decided in an appropriate case

## Amendment of the Constitution

The framers of the Indian Constitution included the provisions for the Amendment of the Constitution to make it flexible in the light of social economic and political transformations. Amendability of the Constitution ensures its dynamism to the changing needs of time. But the stress of the Constitution makers was to adopt such a process of amendment which on the one hand serves the demand of the situation and is at the same time rigid enough to stand for the rights of the units under the federal setup

There are three methods envisaged in the constitution for amending it in which only two are

formally mentioned in the Art. 368.

The first type of amendment is a simple alteration of the Constitution which involves a resolution for amendment introduced in either House and passed by both Houses with a simple majority and finally given assent to by the President. The process of amendment is applicable to the Constitution as citizenship, abolishing or creating second chambers in the states, provisions relating to SCs and STs etc.

The second category of Amendment mentioned in Art. 368 pertains to amend certain provisions of the Constitution, besides passage of the Amendment Bill in both the Houses. With a special majority, it should be approved by at least half of the legislative Assemblies of the states of India. Some important matters under it are issues relating to the election of the president and the vice president, executive powers of the Union and the states subjects relating to and the states subjects relating to the division of legislative powers between centre and states, matters relating to supreme court and high courts, representation of states in parliament, amendment in the Art. 368 itself.

The provisions relating to the amendment of the constitution have been a matter of controversy and debate as early as our constitution came into operation. In the Golaknath vs State of Punjab case in 1967, the Supreme Court held that the parliament could not amend the fundamental Rights under part III of the constitution. Again in the Keshvanand Bharti case 1973, the Supreme Court negated any possibility of amendment in the basic structure of the Constitution.

Under the 42nd Amendment of the constitution in 1976, the scope of the amending power of the parliament under Art. 368 was extended to many parts of the Constitution. Secondly, the constitutional amendments were placed beyond the purview of supreme courts power of judicial Review. However, in the Minerva Mills case 1980, the Supreme Court tried to nullify the provisions

of the 42nd Amendment and held that there can not be any amendment in the basic structure of the Constitution.

## Official languages

In India, Hindi is the official language of the Union. International form of Indian numerals can be used for official purpose. The Constitution authorised continued use of English up to 31 January 1965, after which Parliament could further consider the issue. The Official Language Act, 1963 provided for continued use of English in addition to Hindi for official purpose and transaction of business in Parliament. English was to be used for purposes of communication between the union and a state which has not adopted Hindi as official language. It does not, however, prevent such a state from using Hindi for communication with the Union or with a state which has adopted Hindi as such. The Act also lays down that both Hindi and English shall compulsorily be used in certain specified purposes, such as resolution, general orders, rules, notifications, press communiqués, administrative reports, licences, permits, contracts, agreements, etc.

## Language of the states

Schedule VIII enlists 18 languages in the Constitution. Assamese, Bengli, Hindi, Urdu, Marathi, Gujarati, Punjabi, Sanskrit, Kashmiri, Telugu, Tamil, Malayalam, Kannada, Oriya, Nepali, Manipuri, Konkani and Sindhi. Sindhi was added by the Twenty-first Constitutional Amendment Act 1967.

## Schedules of the Constitution

**First Schedule:** The States and the Union Territories that comprise the Union of India are listed in the first schedule.

**States:** 1. Andhra Pradesh; 2. Assam; 3. Bihar; 4. Gujarat; 5. Kerala; 6. Madhya Pradesh; 7. Tamil Nadu; 8. Maharashtra; 9. Karnataka; 10. Orissa; 11. Punjab; 12. Rajasthan; 13. Uttar Pradesh; 14. West Bengal; 15. Jammu and Kashmir; 16. Himachal Pradesh; 17. Haryana; 18. Chandigarh.

Pradesh; 14. West Bengal; 15. Jammu and Kashmir; 16. Nagaland; 17. Haryana; 18. Himachal Pradesh; 19. Manipur; 20. Tripura; 21. Meghalaya; 22. Sikkim; 23. Mizoram; 24. Arunachal Pradesh; 25. Goa.

**Union Territories:** 1. Delhi 2. Andaman and Nicobar Islands; 3. Lakshadweep; 4. Dadra and Nagar Haveli; 5. Daman and Diu; 6. Pondicherry; 7. Chandigarh.

**Second Schedule:** It prescribes the salary payable to the President, the Governor of a State, the Chief Justice of India, Judges of the Supreme Court and High Courts, the Comptroller and Auditor-General, the Speaker and the Deputy Speaker of the Lok Sabha, the Chairman and the Deputy Chairman of Rajya Sabha, the Speaker of the Legislative Assembly and the Chairman and the Deputy Chairman of the Legislative Council.

**Third Schedule:** It contains forms of Oaths and Affirmations.

**Fourth Schedule:** It allocates seats for each State of the Indian Union in Rajya Sabha.

**Fifth Schedule:** It contains provisions as to the administration and control of Scheduled Areas and Scheduled Tribes. This schedule provides for Amendment by a simple majority of Parliament.

**Sixth Schedule:** It contains provisions as to the administration of Tribal Area in the States of Assam, Meghalaya, Tripura, Mizoram and Arunachal Pradesh. This schedule can also be amended by a simple majority of the Parliament.

**Seventh Schedule:** It gives the three lists of powers or subjects to be looked after by the Union (Centre) and the States. In the first place, there is the list of exclusively federal or central subjects. It is called the Union List and comprises 97 subjects. In the second place, there is the list of exclusive powers of the States. The list contains about 66 subjects. In the third and the last place, there is the Concurrent List comprising about 47 subjects.

**Eighth Schedule:** 18 recognised languages are listed in this schedule. 1. Assamese;

2. Bengali; 3. Gujarati; 4. Hindi; 5. Kannada; 6. Kashmiri; 7. Malayalam; 8. Marathi; 9. Oriya; 10. Punjabi; 11. Sanskrit; 12. Sindhi; 13. Tamil; 14. Telugu; 15. Urdu; 16. Konkani; 17. Manipuri; 18. Nepali.

**Ninth Schedule:** This schedule was added by the First Amendment Act of 1951. It contains a list of acquisition laws (i.e. laws under which property has been acquired) which cannot be declared invalid on the ground of inconsistency with any of the Fundamental Rights. It contains Acts and orders relating to land tenures, land tax, railways, industries, etc. passed by the State governments and the Union Government which are beyond the jurisdiction of Civil Courts.

**Tenth Schedule:** This schedule was added by the 52nd Amendment Act of 1985. It contains provisions as to disqualification on ground of defection.

**Eleventh Schedule :** It mentions functional areas or subjects that are necessary for implementation of schemes for economic development and social justice in each Panchayat. To mention a few-agriculture, social forestry, small scale industry, roads, rural housing, education, health and sanitation, poverty-alleviation, non-conventional energy sources, etc.

**Twelfth Schedule :** This schedule mentions three types of municipal committees-Nagar Panchayats for transitional area, Municipal Council for smaller urban areas and Municipal Corporation for large urban areas

## Political terms

**Adjournment Motion :** A motion moved by a member in a legislature when it is desired to draw the attention of the executive to a matter of urgent public importance or interest.

**Amendment :** An alteration made in law or constitution.

**Appropriation Bill :** A bill containing all the demands for grants voted by Lok Sabha along with the expenditures charged on the consolidated



fund of India is called appropriation bill.

**Bicameral System :** The form of legislature which has two Chambers of Houses as opposed to unicameral system having only one House of legislature

**Buffer State :** A small state lying between potential hostile larger states, lessening the risk of gium is a buffer state between France & Germany. Nepal is a buffer state between India & China.

**By-election :** It is an election to a seat in local body or a legislature rendered vacant during the normal life of elected body.

**Bill :** It is a draft of legislative proposals. It is of two types- Government bill & private members bill

**Coalition :** An alliance of political parties for a special purpose. A coalition or coalition government is formed either to deal with a national crisis or when no party is able to secure an absolute majority in the legislature

**Cold War :** A state of apparent peace between two powerful countries or blocs. However, they show malice against each other through press, radio, etc. The term was first used by Bernard M. Baruch

**Charged Affaires :** An official in a diplomatic mission or an embassy who acts for an ambassador in his absence

**Consuls :** Commercial representatives abroad are known as consuls

**Coup d'etat :** A political strategy or action resulting in the change of government, generally initiated by military personnel. A sudden change of government brought about by force. It is different from a revolution which involves the participation of the masses.

**Filibuster :** Member of a legislature who tries to prevent the passage of a Bill by making long speeches, etc. Also, any such long speech

**Guillotine :** A method adopted in a legislature to cut short discussion on a Bill by fixing time for taking votes.

**Habeas Corpus :** A writ requiring a jailor to

produce a prisoner before a judge or court in person & state the reasons for his being in prison

**Hot line :** The direct telephone & teleprinter link set up in August, 1953 between Kremlin (USSR) & the Washington (USA) to avoid accidental war. Now, any line of speedy communication, ready for an emergency is known as the hot line.

**Iron Curtain :** A term coined by Sir Winston Churchill. It is applied to such countries which do not give other countries any information concerning their affairs. Earlier, the term was applied to Soviet Russia & her satellites.

**Ordinance :** It is an act promulgated by the Head of a State in case of emergency without undergoing the formalities of the regular procedure of the legislature of the country. It cannot remain in force beyond a specified period.

**Ordinary Bill :** All bills except money bill & constitutional amendment bill are ordinary bills.

**Plebiscite :** A direct vote of the qualified voters in regard to some important public question.

**Leader of the Opposition :** A statutory recognition has been accorded to the leader of opposition in Rajya Sabha & Lok Sabha by an enactment in 1977. The leaders are entitled to salaries & certain facilities to enable them to discharge their functions in parliament. The leader of the opposition party must have at least one tenth members of the total membership of the house.

**Finance Bill :** It contains all the financial proposals of the government for the following year.

**Vote on-account :** Normally vote on account is taken for two months for a sum equivalent to one sixth of the estimated expenditure for the estimated expenditure for the entire year under demand for grants. But in the election year it may be for 3-4 months. As a convention, it is passed by Lok Sabha without any discussion. In case of Railway budget, no vote on account can be passed except if necessary, in an election year.

**Vote of Credit & Exceptional Grants :**

During national emergency, the house might grant lump-sum money without details through a vote of credit. Exceptional grants are meant for special purpose.

**Quorum :** The minimum number of members of a legislature that must be present to make the proceedings valid. The minimum number of required members for the fulfilment of quorum is equal to the one tenth of the total number of members of the legislature including the speaker or the person acting as such.

**Referendum :** A process or device which all important laws & constitutional amendments after they have been passed by the legislative body, are referred to the vote of the electorate. The people may ratify & reject them. This procedure is mostly followed in Britain.

**Republic :** A state, which has a non-hereditary head (not King or Queen). India is a republic, because her head of state is president whose selection is non-hereditary in character.

**Veto :** Constitutional right of a person (e.g. President or King) or a legislative or other body, or a member of the United Nations Security Council, to reject or prohibit something.

**Whip :** Organising secretary of a parliamentary party, with authority over its members to maintain discipline & secure attendance at parliamentary debates & voting. Whip also means an order given by such secretary to members of the party to attend a debate & vote.

**Zero Hour :** The period follows the question hour & generally begins at noon (12 A.M. to 1 P.M.) is zero hour. Officially it is used to raise various issues of public importance without prior notice.

**Question Hour :** The first hour of every sitting in both houses i.e. 11.00 A.M. to 12.00 A.M. There questions are asked by the members & answers are given by the concerned ministers. The main types of questions are as follows :

(a) **Starred Question :** One for which an

oral answer is required to be given by the minister on the floor of the house. Supplementary questions may be asked. The speaker only decides whether the question should be answered orally or otherwise. One member can ask only one starred question in a day.

(b) **Unstarred Question :** One for which the minister has to give a written answer. No supplementary question can be asked. A 10 day notice is required to ask such question.

**Speaker Protem :** When the Lok Sabha is summoned for the first time after the general elections, the President appoints a member of Lok Sabha as the Speaker protem (normally the seniormost member). The protem speaker becomes ineffective, when new elected members take oath & elect their speaker. For example in the 10th Lok Sabha, Indrajit Gupta was the protem speaker.

**Half an hour discussion :** It is an answer out of the question already answered. It can be held in the Lok Sabha during the last half-an-hour on (Mon-Wed-Fri). In Rajya Sabha it is held generally from 5 P.M. to 5.30 P.M. on any day allotted by the chairman. A member wishing to raise such a question should give a notice in writing at least three days in advance.

**Motion :** It is a proposal brought before the house for eliciting decision or expressing the opinion of the house.

**Substantive Motion :** It is a self-contained proposal submitted for the approval of the house. For example, adjournment motion, no confidence motion etc.

**Resolution :** It is a substantive motion. The difference between motion & resolution is one of procedure than that of content. Every resolution is a particular type of motion but all motions need not be substantive. Further, whereas all resolutions are subjected to vote, all motions cannot be for example private members resolution, Government resolution, statutory resolution etc.

**No Confidence Motion :** A resolution introduced by the opposition claiming that the house lost its confidence in the government.

**Privileges :** They are certain rights belonging collectively to each house of the Parliament and also some rights which belong to the members individually without which the independence of action or the dignity of the position of either house cannot be maintained.

**Adjourn, Prorogue & Dissolve :** Adjourn is suspension of a session. Prorogue means the ending of a session at the discretion of the President or the Governor. A 'dissolve' is ending the life of the legislature and the assemblies.

**Mandamus :** It commands the person to whom it is addressed to perform some public or quasipublic legal duty which he has refused to perform & the performance of which cannot be enforced by any other adequate legal remedy.

Mandamus will not be granted against President, Governor, a private individual or body whether incorporated or not except where the state is in collusion with such private party.

**Prohibition :** The writ of prohibition is a writ issued by the Supreme Court or a High Court to an inferior court forbidding the latter to continue proceedings, there in excess of its jurisdiction or to usurp a jurisdiction with which it is not legally vested.

**Certiorari :** Certiorari is issued to quash the order or decision issued to prohibit the tribunal from making the ultravires orders or decisions. It follows therefore that while prohibition is available at an earlier stage, certiorari is available at a latter stage, on similar grounds.

**Quo Warranto :** It is a proceeding where by the court enquires into the legality of the claim which a party asserts to a public office & to oust him from its enjoyment, if the claim is not well founded.

**Token Cut :** Cut motion is a device to initiate discussion on demands for grants moved

generally by oppositions. It has a symbolic value.

## Important Amendments of Indian Constitution

- 1. The Constitution (First Amendment) Act, 1950 :** This amendment provided for several new grounds of restrictions to the right to freedom of speech and expression and the right to practice any profession or to carry on any trade or business as contained in Article 19 of the Constitution. The amendment also inserted two new Articles, 31A and 31B and the Ninth Schedule to give protection from challenge to land reform laws.
- 2. The Constitution (Second Amendment) Act, 1952 :** By This amendment, the scale of representation for election to the Lok Sabha was readjusted.
- 3. The Constitution (Third Amendment) Act, 1954 :** This amendment substituted entry 33 of List III (Concurrent List) of the Seventh Schedule to make it correspond to Article 369.
- 4. The Constitution (Fourth Amendment) Act, 1955 :** Article 31 (2) of the Constitution was amended to re-state more precisely the State's power of compulsory acquisition and requisitioning of private property and distinguish it from cases where the operation of regulatory or prohibitory laws of the States results in 'deprivation of property'. Article 31A of a Constitution was also amended to extend its scope to cover categories of essential welfare legislation like abolition of zamindaris, proper planning of urban and rural areas and for effecting a full control over the mineral and oil resources of the country, etc., Six acts were also included in the Ninth Schedule. Article 305 was also amended to save certain laws providing of State Monopolies.
- 5. The Constitution (Fifth Amendment) Act, 1955 :** This amendment made a change in Article 352 so as to empower President to specify a time limit for state legislatures to convey their views

on the proposed Central laws affecting areas, boundaries, etc., of their states.

2. *The Constitution (Sixth Amendment) Act, 1956* : This amendment made some changes in Articles 269 and 286 relating to taxes and sale and purchase of goods in the course of inter-state trade and commerce. A new entry 92A was added to the Union List of the Seventh Schedule to the Constitution.

3. *The Constitution (Seventh Amendment) Act, 1956* : This amendment act purported to give effect to the recommendations of the State Reorganisation Commission and the necessary consequential changes. Broadly, the then existing states and territories were changed to have two-fold classification of states and union territories. The amendment also provided for composition of the House of the People, readjustment after every census, provisions regarding the establishment of new High Courts, High Court Judges etc.

4. *The Constitution (Eighth Amendment) Act, 1960* : Article 334 was amended with a view to extending the period of reservation of seats for Scheduled Castes and Scheduled Tribes and to the Anglo-Indian community by nomination in Parliament and in the State Legislatures for a further period of ten years.

5. *The Constitution (Ninth Amendment) Act, 1960* : This amendment was necessitated in view of the Judgement of Supreme Court in *In Re Berubari Union* by which it was held that any agreement to cede a territory to another country could not be implemented by a law made under Article 3 but would only be implemented by an amendment of the Constitution.

6. *The Constitution (Tenth Amendment) Act, 1961* : This Act amended Article 240 and the First Schedule in order to include areas of Dadra and Nagar Haveli as a Union Territory and to provide for its administration under the regulation making powers of President

7. *The Constitution (Eleventh Amendment) Act, 1961* : The purpose of this amendment was to amend Articles 66 and 71 of the Constitution to provide that the election of President or Vice President could not be challenged on the ground of any vacancy in the appropriate electoral college.

8. *The Constitution (Twelfth Amendment) Act, 1962* : This amendment sought to include Goa, Daman and Diu as a Union Territory and to amend Article 240 for the purpose.

9. *The Constitution (Thirteenth Amendment) Act, 1962* : By this amendment, a new Article 371A was added to make special provisions with respect to state of Nagaland in pursuance of an agreement between Government of India and Naga People's Convention.

10. *The Constitution (Fourteen Amendment) Act, 1962* : By this Act, Pondicherry was included in the first schedule as a Union Territory. The creation of Legislature by Parliamentary law for Himachal Pradesh, Manipur, Tripura, Goa, Daman and Diu and Pondicherry was also made possible by this Act.

11. *The Constitution (Fifteenth Amendment) Act, 1963* : This amendment provided for increase in the age of retirement of High Court Judges and for the provision of compensatory allowance to judges who are transferred from one High Court to another.

12. *The Constitution (Sixteenth Amendment) Act, 1963* : Article 19 was amended by this Act to impose further restriction on the rights to freedom of speech and expression, to assemble peaceably and without arms and to form association in the interests of sovereignty and integrity of India. The oath of affirmation to be subscribed by candidates seeking election to Parliament and State Legislature have been amended to include as one of the conditions that they will uphold the sovereignty and integrity of India.

17. *The Constitution (Seventeenth Amendment) Act, 1964* : Article 31A was further amended to prohibit the acquisition of land under personal cultivation unless the market value of the land is paid as compensation and the definition of 'estate' as contained in that Article had also been enlarged with retrospective effect. The Ninth Schedule had also been amended to include 44 more Acts.
18. *The Constitution (Eighteenth Amendment) Act, 1966* : Article 3 was amended by this Act to specify that the expression 'State' will include a union territory also and to make it clear that the power to form a new state under this Article includes a power to form a new state or union territory by uniting a part of a state or a union territory to another state or union territory.
19. *The Constitution (Nineteenth Amendment) Act, 1966* : Article 324 was amended to effect a consequential change. As a result of the decision to abolish Election Tribunals and to hear election petitions by High Courts.
20. *The Constitution (Twenty-first Amendment) Act, 1966* : This amendment was necessitated by the decision of the Supreme Court in *Chandramohan Vs State of Uttar Pradesh* in which certain appointments of District Judges in State of Uttar Pradesh were declared void by Supreme Court. A new Article 233A was added and the appointments made by Governor were validated.
21. *The Constitution (Twenty-first Amendment) Act, 1967* : By this amendment, Sindhi Language was included in the Eighth Schedule.
22. *The Constitution (Twenty-second Amendment) Act, 1969* : This act was enacted to facilitate the formation of a new autonomous state of Meghalaya within the state of Assam.
23. *The Constitution (Twenty-third Amendment) Act, 1969* : Article 334 was amended so as to extend the safeguards in respect of reservation of seats in Parliament and State Legislatures for Schedules Castes and Scheduled Tribes as well as for Anglo-Indians for a further period of ten years.
24. *The Constitution (Twenty-fourth Amendment) Act, 1971* : This Act amended Article 13 and Article 368 to remove all doubts regarding the power of Parliament to amend the Constitution including the Fundamental Rights.
25. *The Constitution (Twenty-fifth Amendment) Act, 1971* : This amendment further amended Article 31 in the wake of the Bank Nationalisation case. The word 'amount' was substituted in place of 'compensation' in the light of the judicial interpretation of the word 'compensation' meaning 'adequate compensation'.
26. *The Constitution (Twenty-sixth Amendment) Act, 1971* : By this amendment, the privy and privileges of the former rulers of Indian states were abolished. This amendment was passed as a result of Supreme Court's decision in *Madhav Rao's case*.
27. *The Constitution (Twenty-seventh Amendment) Act, 1971* : This amendment was passed to provide for certain matters necessitated by the reorganisation of north-eastern states. A new Article 239B was inserted which enabled the promulgation of Ordinances by Administrators of certain union territories.
28. *The Constitution (Twenty-eighth Amendment) Act, 1972* : The amendment was enacted to abolish the special privileges of the members of Indian Civil Services in matters of leave pension and rights as regard to disciplinary matters.
29. *The Constitution (Twenty-ninth Amendment) Act, 1972* : The Ninth Schedule to the Constitution was amended to include therein two Kerala Acts on land reforms.
30. *The Constitution (Thirtieth Amendment) Act, 1972* : The purpose of the amendment was to amend Article 133 in order to do away with the valuation test of Rs 20,000 as fixed therein.

and to provide instead for an appeal to Supreme Court in Civil proceedings only on a certificate issued by High Court that the case involves a substantial question of law of general importance and that in opinion of High Court, the question needs to be decided by Supreme Court.

1. *The Constitution (Thirty-first Amendment) Act, 1973* : This Act inter alia raises the upper limit for the representation of states in the Lok Sabha from 500 to 525 and reducing the upper limit for the representation of union territories from 25 members to 20.

2. *The Constitution (Thirty-second Amendment) Act, 1973* : This Act provided the necessary constitutional authority for giving effect to the provision of equal opportunities to different areas of the State of Andhra Pradesh and for the constitution of an Administrative Tribunal with jurisdiction to deal with grievances relating to public services. It also empowered Parliament to legislate for the establishment of a Central university in the State.

3. *The Constitution (Thirty-third Amendment) Act, 1974* : By this amendment, Articles 101 and 190 were amended in order to streamline the procedure for resignation of Members of Parliament and State Legislatures.

34. *The Constitution (Thirty-fourth Amendment) Act, 1974* : By this Act, twenty more land tenure and land reforms laws enacted by various State Legislatures were included in the Ninth Schedule.

35. *The Constitution (Thirty-ninth Amendment) Act, 1974* : By this Act a new Article 2A was added thereby conferring on Sikkim the status of an associate State of Indian Union. Consequent amendments were made to Articles 80 and 81. A new schedule i.e., Tenth Schedule, was added laying down terms and conditions of association of Sikkim with the Union.

36. *The Constitution (Thirty-sixth Amendment) Act, 1975* : This enacted to make Sikkim a full-

fledged State of Indian Union and to include it in the First Schedule of the Constitution and to allot to Sikkim one seat each in the Council of States and in the House of the People. Article 2A and the Tenth Schedule inserted by the Constitution (Thirty-fifth Amendment) Act were omitted and Articles 80 and 81 were suitably amended.

37. *The Constitution (Thirty-seventh Amendment) Act, 1975* : By this Act, Union Territory of Arunachal Pradesh was provided with a Legislative Assembly. Article 240 of the Constitution was also amended to provide that as in the case of other union territories with Legislatures, the power of President to make regulations for the Union Territory of Arunachal Pradesh may be exercised only when the assembly is either dissolved or its functions remain suspended.

38. *The Constitution (Thirty-eighth Amendment) Act, 1975* : This Act amended Articles 123, 213, and 352 of the Constitution to provide that the satisfaction of President or Governor contained in these Articles would be called in question in any court of law.

39. *The Constitution (Thirty-ninth Amendment) Act, 1975* : By this Act, disputes relating to the election of President, Vice-President, Prime Minister and Speaker are to be determined by such authority as may be determined by Parliamentary Law. Certain Central enactments were also included in the Ninth Schedule by this Act.

40. *The Constitution (Fortieth Amendment) Act, 1976* : This act provided for vesting in the Union of all mines, minerals and other thing of value lying in the ocean within the territorial waters or the continental shelf or the exclusive economic zone of India.

41. *The Constitution (Forty-first Amendment) Act, 1976* : By this Act, Article 316 was amended to raise the retirement age of Members of State Public Service Commissions and Joint State Service Commissions from 60 to 65.

**42. The Constitution (Forty-second Amendment) Act, 1976 :** This act made a number of important amendments in the Constitution. These amendments were mainly for purpose of giving effect to the recommendations of Swaran Singh Committee. Some of the important amendments made are for the purpose of spelling out expressly the high ideals of socialism, secularism and the integrity of the nation, to make the Directive Principles more comprehensive and giving them precedence over those Fundamental Rights which have been allowed to be relied upon to frustrate socio-economic reforms. The amendment Act also inserted a new chapter on the Fundamental Duties of citizens and made special provisions for dealing with anti-national activities, whether by individuals or by associations. The judiciary provisions were also amended by providing for a requirement as to the minimum number of judges for determining question as to the constitutional validity of law and for a special majority of not less than two-third for declaring any law to be constitutionally invalid

**43. The Constitution (Forty-third Amendment) Act, 1977** This Act inter alia provided for the restoration of the jurisdiction of the Supreme Court and High Courts, curtailed by the enactment of the Constitution (Forty-second Amendment) Act, 1976 and accordingly Articles 32A, 131A, 144A, 226A and 228A included in the Constitution by the said amendment, were omitted by this Act. The Act also provided for the omission of Article 31 which conferred special powers on Parliament to enact certain laws in respect of anti-national activities.

**44. The Constitution (Forty-fourth Amendment) Act, 1978 :** The right to property which had been the occasion for more than one amendment of Constitution was omitted as a Fundamental Right and it was made only as a legal right. It was, however, ensured that the removal of the right to property from the list of Fundamental

Rights would not affect the right of minorities to establish and administer educational institutions of their choice. Article 352 of the Constitution was amended to provide "armed rebellion" as one of the circumstances for declaration of emergency. Internal disturbance not amounting to armed rebellion would not be a ground for the issuance of a Proclamation. The right to personal liberty as contained in Articles 21 and 22 is further strengthened by the provision that a law for preventive detention cannot authorise, in any case, detention for a longer period than two months unless an Advisory Board has reported that there is sufficient cause for such detention. The additional safeguard has also been provided by the requirements that Chairman of an Advisory Board shall be a serving Judge of the appropriate High Court and that the Board shall be constituted in accordance with the recommendations of the Chief Justice of that High Court.

**45. The Constitution (Forty-fifth Amendment) Act, 1980 :** This was passed to extend safeguards in respect of reservation of seats in Parliament and State Assemblies for Scheduled Castes, Scheduled Tribes as well as for Anglo-Indians for a further period of ten years.

**46. The Constitution (Forty-sixth Amendment) Act, 1982 :** Article 269 was amended so that the tax levied on the consignment of goods in the course of inter-state or commerce shall be assigned to the states. This Article was also amended to enable Parliament to formulate by law principle, for determining when a consignment of goods takes place in the course of inter-state trade or commerce. A new entry 92B was also inserted in the Union List to enable the levy of tax on the consignment of goods where such consignment takes place in the course of inter-state trade or commerce.

**47. The Constitution (Forty-seventh Amendment) Act, 1984 :** This amendment is intended to

provide for the inclusion of certain land Reforms Acts in the Ninth Schedule to the Constitution with a view to obviating the scope of litigation hampering the implementation process of those Acts.

4. *The Constitution (Forty-eighth Amendment) Act, 1984* : The Proclamation issued by President under Article 356 of the Constitution with respect to the State of Punjab cannot be continued in force for more than one year unless the special conditions mentioned in clause (5) of the said Article are satisfied.

5. *The Constitution (Forty-ninth Amendment) Act, 1984* : Tripura Government recommended that the provisions of the Sixth Schedule to the Constitution may be made applicable to tribal areas of that State. The amendment involved in this Act is intended to give a constitutional security to the autonomous District Council functioning in the State.

6. *The Constitution (fiftieth amendment) Act, 1984* : by article 33 of the constitution, parliament is empowered to enact laws determining to what extent any of the rights conferred by part iii of the constitution shall, in their application to the members of the armed forces or the forces charged with the maintenance of public order, be restricted or abrogated so as to ensure proper discharge of their duties and maintenance of discipline among them. It was proposed to amend Article 33 so as to bring within its ambit:

1. *The Constitution (Fifty-first Amendment) Act, 1984* : Article 330 has been amended by this Act for providing reservation of seats for Scheduled Tribes in Meghalaya, Nagaland, Arunachal Pradesh and Mizoram in Parliament and Article 332 has been amended to provide similar reservation in the Legislative Assemblies of Nagaland and Meghalaya to meet the aspirations of local tribal population.

2. *The Constitution (Fifty-second Amendment) Act, 1985* : It amends the Constitution to provide

that a Member of Parliament or a State Legislature who defects or is expelled from the party which set him up as a candidate in the election or if an independent member of the House joins a political party after expiry of six months from the date on which he takes seat in the House shall be disqualified to remain a member of the House. The Act also makes suitable provisions with respect to splits in and merger of political parties

3. *The Constitution (Fifty-third Amendment) Act, 1986* : This has been enacted to give effect to the Memorandum of Settlement of Mizoram which was signed by Government of India and Mizoram Government with Mizoram National Front on 30 June 1986. For this purpose, a new Article 371G has been inserted in the Constitution *inter alia* preventing application of any Act of Parliament in Mizoram in respect of religious or social practices of Mizos, Mizos' customary law and procedure, administration of civil and criminal practice involving decisions according to Mizos' customary law and ownership and transfer of land unless a resolution is passed in the Legislative Assembly to that effect. This, however, will not apply to any Central Act already in force in Mizoram before the commencement of this amendment. The new Article also provides that the Legislative Assembly of Mizoram shall consist of not less than 40 members

4. *The Constitution (Fifty-fourth Amendment) Act, 1986* : This Act increased the salaries of Supreme Court and High Court judges as follows

Chief Justice of India	Rs 10,000 per month
Judges of Supreme Court	Rs 9,000 per month
Chief Justice of High Court	Rs 9,000 per month
Judges of High Court	Rs 8,000 per month

5. *The Constitution (Fifty-fifth Amendment) Act, 1986* : This Act seeks to give effect to the proposal of Government of India regarding the Union Territory of Chandigarh



Pradesh and for this purpose, a new Article 371H has been inserted which, inter alia, confers, having regard to the sensitive location of Arunachal Pradesh to vest special responsibility on Governor of the new State of Arunachal Pradesh with respect to law and order in the State and in the discharge of his functions, the Governor shall after consulting the Council of Ministers, exercise his individual judgement, as to the action to be taken and this responsibility shall cease when President so directs. The new Article also provides that the new Legislative Assembly of the new State of Arunachal Pradesh, shall consist of not less than thirty members.

56. *The Constitution (Fifty-sixth Amendment) Act, 1987* : Government of India has proposed to constitute the territories comprised in Goa District of the Union Territory of Goa, Daman and Diu as the State of Goa and the territories comprised in Daman and Diu districts of that Union Territory as a new Union Territory of Daman and Diu. In this context, it was proposed that the Legislative Assembly of the new State of Goa shall consist of 40 members. The existing Legislative Assembly of the Union Territory of Goa, Daman and Diu has 30 elected members and three nominated members. It was intended to make this Assembly with the exclusion of two members representing Daman and Diu districts the provisional Legislative Assembly for the new State of Goa until elections are held on the expiry of the five year terms of the existing Assembly. It was, therefore, decided to provide that the Legislative Assembly of the new State of Goa shall consist of not less than 30 members. The special provision required to be made to give effect to this proposal is carried out by this amendment.

57. *The Constitution (fifty-seventh amendment) Act, 1987* : The Constitution (fifty-first amendment) act, 1984 was enacted to provide for

reservation of seats in the house of the people for scheduled tribes in Nagaland, Meghalaya, Mizoram and Arunachal Pradesh and also for reservation of seats for scheduled tribes in the legislative assemblies of Nagaland and Meghalaya by suitably amending articles 330 and 332.

58. *The Constitution (Fifty-eighth Amendment) Act, 1987* : There has been general demand for the publication of authoritative text of the Constitution in Hindi. It is imperative to have an authoritative text of the Constitution for facilitating its use in the legal process. The Constitution has been amended to empower President of India to publish under his authority the translation of the Constitution in Hindi signed by the Members of the Constituent Assembly with such modification as may be necessary to bring it in, conformity with the language, style and terminology adopted in the authoritative texts of Central Acts in Hindi language. President has also been authorised to publish the translation in Hindi of every amendment of the Constitution made in English.

59. *The Constitution (Fifty-ninth Amendment) Act, 1988* : The Act amends Article 365 (5) of the Constitution so as to facilitate the extension of a Presidential Proclamation issued under clause (1) of Article 356 beyond a period of one year, if necessary upto a period of three years, as permissible under clause (4) of Article 356 with respect to the State of Punjab because of the continued disturbed situation there. The Act also amends Article 352 of the Constitution pertaining to the Proclamation of emergency in its application to the State of Punjab and includes internal disturbance as one of the grounds for making a Proclamation in respect of the State of Punjab only. As a consequence of amendment in Article 352, Articles 358 and 359 in relation to the State of Punjab will be operative only for a period of two years from 30 March 1985.

which is the date of commencement of the amendment.

60. *The Constitution (Sixtieth Amendment) Act, 1988* : The Act amends clause (2) of Article 276 of the Constitution so as to increase the ceiling of taxes on professions, trades, ceilings and employment from Rs 250 per annum to Rs 2,500 per annum. The upward revision of this tax will help state governments in raising additional resources. The proviso to clause (2) has been omitted.

61. *The Constitution (Sixty-first Amendment) Act, 1989* : The Act provides for reducing voting age from 21 to 18 years by amending Article 326 of the Constitution.

62. *The Constitution (Sixty-second Amendment) Act, 1989* : Article 334 of the Constitution lays down that the provisions of the Constitution relating to the reservation of seats for the Scheduled Castes and the Scheduled Tribes and the representation of the Anglo-Indian community by nomination in the Lok Sabha and in the Legislative Assemblies of the States shall cease to have effect on the expiry of a period of 40 years from the commencement of the Constitution. Although the Scheduled Castes and the Scheduled Tribes have made considerable progress in the last 40 years, the reasons which weighed with the Constituent Assembly in making provisions with regard to the aforesaid reservation of seats and nomination of members, have not ceased to exist. The Act amends Article 334 of the Constitution to continue the reservation for the Scheduled Castes and the Scheduled Tribes and the representation of the Anglo-Indians by nomination for a further period of 10 years.

63. *The Constitution (Sixty-third Amendment) Act, 1989* : The Constitution (Fifty-ninth Amendment) Act, 1988 was enacted in March 1988. It made certain changes in regard to making a Proclamation of Emergency in Punjab and to the

duration of President's rule in State. On reconsideration, the Government decided that the special powers in regard to the Proclamation of Emergency in Punjab as envisaged in the said amendment is no longer required. Accordingly the provision to clause (5) of Article 355 and Article 359A of the Constitution have been omitted.

64. *The Constitution (Sixty-fourth Amendment) Act, 1990* : This Act amends clauses (4) and (5) of Article 355 of the Constitution with a view to facilitate the extension of the proclamation issued under clause (1) of Article 355 of the Constitution on 11 May 1987 upto a total period of three years and six months in relation to the State of Punjab

65. *The Constitution (Sixty-fifth Amendment) Act, 1990* : Article 338 of the Constitution provides for a Special Officer for the Scheduled Castes and Scheduled Tribes to investigate all matters relating to the safeguards provided for the Scheduled Castes and Scheduled Tribes under the Constitution and to report to the President on their working. The Article has been amended for the Constitution of a National Commission for Scheduled Castes and Scheduled Tribes consisting of a Chairperson, Vice Chairperson and five other Members who shall be appointed by the President by warrant under his hand and seal. The amended Article elaborates the duties of the said Commission and covers measures that should be taken by the Union or any state for the effective implementation of the reports presented by the Commission. It also provides that the Commission shall, while investigating any matter or inquiring into any complaint, exercise all the powers of a Civil Court trying a suit, and the reports of the said Commission shall be laid before Parliament and the Legislatures of the states

66. *The Constitution (Sixty-sixth Amendment) Act, 1990* : This

to land reforms and ceiling on agricultural land holdings enacted by States of Andhra Pradesh, Bihar, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal and administration of the Union Territory of Pondicherry, from challenge in courts, by including them in the Ninth Schedule of the Constitution.

67. *The Constitution (Sixty-Seventh Amendment) Act, 1990* : The three year period in the case of proclamation issued on 11 May 1987 with respect to the State of Punjab was extended to three years and six months by the Constitution (sixty-fourth Amendment) Act, 1990. This Act further amends clause (4) of Article 356 so as to further extend the period upto a total period of four years..

68. *The Constitution (Sixty-eighth Amendment) Act, 1991* : The three year period in the case of proclamation issued on 17 May 1987 with respect to the State of Punjab was earlier extended to four years by the Constitution (sixty-seventh Amendment) Act, 1990. This Act further amends clause (4) of Article 356 so as to further extend the period upto a total period of five years

69. *The Constitution (Sixty-ninth Amendment) Act, 1991* : The Government of India appointed on 24 December 1987 a Committee to go into various issues connected with the administration of Delhi and to recommend measures, inter alia for the streamlining of the administrative set up. After detailed inquiry and examination, it recommended that Delhi should continue to be a union territory and may be provided with a Legislative Assembly and a Council of Ministers responsible to such assembly with appropriate powers to deal with matters of concern to the common man. The Committee also recommended that with a view to ensuring stability and permanence, arrangements should be incorporated in the

Constitution to give the national capital a special status among the union territories. This act has been passed to give effect to the above recommendations.

70. *The Constitution (Seventieth Amendment) Act, 1992* : While considering the (Seventy-fourth Amendment) Bill, 1991 and the Government of National Capital Territory Bill, 1991 views were expressed in both the Houses of Parliament in favour of including also the elected members of the legislative assemblies of union territories in the electoral college for the election of the President under Article 54 of the Constitution.

71. *The Constitution (Seventy-first Amendment) Act, 1992* : There have been demands for inclusion of certain languages in the Eighth Schedule to the Constitution. This Act amends the Eighth Schedule to the Constitution to include Konkani, Manipuri and Nepali languages in the Eighth Schedule to the Constitution.

72. *The Constitution (Seventy-second Amendment) Act, 1992* : For restoring peace and harmony in the areas of the State of Tripura where disturbed conditions prevailed, a Memorandum of Settlement was signed by the Government of India with Tripura National Volunteers on 12 August 1988.

73. *The Constitution (Seventy-third Amendment) Act, 1993* : A new Part IX relating to the Panchayats has been inserted in the Constitution to provide for among other things, Gram Sabha in a village or group of villages; constitution of Panchayats at village and other level or levels; direct elections to all seats in Panchayats at the village and intermediate level, if any and to the offices of Chairpersons of Panchayats at such levels; reservation of seats for the Scheduled Castes and Scheduled Tribes in proportion to their population for membership of Panchayats and office of Chairpersons in Panchayats at each level; reservation of

not less than one-third of the seats for women; fixing tenure of five years for Panchayats and holding elections within a period of six months in the event of supersession of any Panchayat.

**74. The Constitution (Seventy-fourth Amendment) Act, 1993 :**

A new part IX-A relating to the Municipalities has been incorporated in the Constitution to provide for among other things, constitution of three types Municipalities, i.e. Nagar Panchayats for areas in transition from a rural area to urban area, Municipal Councils for smaller urban areas and Municipal Corporations for larger urban areas.

**75. The Constitution (Seventy-fifth Amendment) Act, 1994 :**

The Supreme Court taking note of the precarious state of rent litigation in the country in case of Prabhakaran Nair and others vs State of Tamil Nadu (Civil Writ Petition 506 of 1986) and other writs observed that the Supreme Court and the High Courts should be relieved of the heavy burden of rent litigation. Tiers of appeals should be curtailed. Laws should be simple, rational and clear, litigations must come to end quickly.

Therefore, this Act amends Article 323B in Part XIVA of the Constitution so as to give timely relief to the rent litigants by providing for settling up of state-level Rent Tribunals in order to reduce the tiers of appeals and to exclude the jurisdiction of all courts, except that of the Supreme Court, under Article 136 of the Constitution.

**76. The Constitution (Seventy-sixth Amendment) Act, 1994 :**

The Tamil Nadu Government enacted a legislation, namely, Tamil Nadu Backward Classes, Scheduled Castes and Scheduled Tribes (Reservation of Seats in Educational Institution and of appointments or posts in the Services under the State) Bill, 1994 and forwarded it to the Government of India for consideration of the President of India in terms of Article 31-C of the Constitution. The

Government of India supported the provision of the State legislation by giving the President's assent to the Tamil Nadu Bill. As a corollary to this decision, it was necessary that the Tamil Nadu Act 45 of 1994 was brought within the purview of the Ninth Schedule to the Constitution so that it could get protection under Article 31B of the Constitution with regard to the judicial review.

**77. The Constitution (Seventy-seventh Amendment) Act, 1995 :**

In view of the commitment of the Government to protect the interests of the Scheduled Castes and the Scheduled Tribes, the Government has decided to continue the existing policy of reservation in promotion for the Scheduled Castes and the Scheduled Tribes. To carry out this, it was necessary to amend Article 16 of the Constitution by inserting a new clause (4A) in the said Article to provide for reservation in promotion for the Scheduled Castes and the Scheduled Tribes. This Act seeks to achieve the aforesaid object.

**78. The Constitution (Seventy-eighth Amendment) Act, 1995 :**

Article 31B of the Constitution confers on the enactments included in the Ninth Schedule to the Constitution immunity from legal challenge on the ground that they violate the fundamental rights enshrined in Part III of the Constitution. The Schedule consists of list of laws enacted by various state governments and Central Government which inter alia affect rights and interest in property including land. Since the amendment to Acts which are already placed in the Ninth Schedule are not automatically immunized from legal challenge, a number of amending Acts along with a few principal Acts have been included in the Ninth Schedule so as to ensure that implementation of these Acts is not adversely affected by litigation. This Act seeks to achieve the above objects. The Constitution has not been amended during 1993. ■■

# INDIAN ECONOMY

Indian economy could be termed as a 'developing economy', which is characterised by "the co-existence, in greater or lesser degree, of utilised or unutilised manpower on the one hand, and of unexploited natural resources on the other". A developing economy bears the common features of technological backwardness, low per capita income coupled by wide spread poverty, heavy population pressure, low grade productivity, high unemployment, low level utilisation of country's natural resources, rigid social structure, predominance of orthodox religious beliefs, lack of opportunity for capital formation, predominance of agriculture, scanty participation in international trade etc. But all this is amidst a possibility of economic development a small pockets of high rates of economic growth and affluence.

It is a gainsaying truth, what the world economy has experienced, that colonisation directly lead to the exploitation of the colonised country by the colonial rulers. Colonisation is also a factor for the underdevelopment of a country's economy India was a victim to the colonial feature of economic exploitation for more than hundred years

The British colonial exploitation in India can be broadly divided into three periods. They are (i) the period of merchandised capital, (ii) the period of industrial capital which lead to the drain of Indian wealth for the interest of British industry; and (iii) financial capital.

During British period foreign capital flow into India. However, in real terms those capital are not according to the proper needs of India and directly help for the capital growth of Britishers. The overall impact of British rule in Indian economy can be summed up as stagnation of per capita income over a long period, high priority to the traditional methods of agricultural activities, repeated famines and acute poverty, ruin of

handicrafts and traditional village industries, ineffective land holding and erroneous implementation of zamindari practices etc.

The basic aim of British administration in India was to transform Indian subcontinent a consumer market for British finished goods. Technological upgradation and development of infrastructure as well as social infrastructure were negligible.

During the time of independence, Indian economy had almost all the features of an undeveloped economy. In the last fifty years of independence, a lot of policy initiatives have been taken by the government of India to upgrade the economic base of the country. Still, Indian economy is gripped under poverty, population explosion, backwardness both in agriculture and industry, low grade technological development, high unemployment, wide difference between the high and low income levels. Now in India, incidence of poverty is coexisting with sophisticated nuclear technology.

The policy measures taken within the last five decade metamorphosised Indian economy to break the stagnant per capita income, achieve self-sufficiency in food-grain production, growth of capital good industries, wide expansion of infrastructural sector, liberalisation and globalisation of Indian economy, and some drastic economic measures to maintain a constant high growth.

Indian economy is a unique blend of public and private sector, otherwise known as mixed economy. It is also a dualistic economy — the modern industry and traditional agricultural activities exist side by side.

The Constitution of India guarantees fundamental mandatory economic rights to the people, directive principles by which the state policies are to be guided, and a federal and decentralised

of decision making for economic activities. The mandatory economic rights which the Constitution promises are (i) equality of opportunity in employment or appointment to any office irrespective of race, caste and sex, (ii) all the citizens of India shall have the right to acquire, hold and dispose property or carry on any occupation, trade or business, (iii) right to acquire private property by the state with compensation paid under the procedure established by law, (iv) ban on begging, child labour and traffic of human beings.

The federal economic structure of India include the central government and the state governments; within a unitary system. Demarcation of responsibilities are divided between the central and state governments. However, the residuary power is vested with the central government. Besides Finance Commission, other economic commissions are set up by the central government time to time to look after the parity of resource distribution among the states. Annual budgets (both general and railway) and five year plans are the backbone of India's economic policy initiatives.

### Some maladies of Indian economy

It is evident that the proportion of population engaged in agriculture in developed countries is much less than the proportion of population engaged in agriculture in underdeveloped countries. The main problem in India is the high level of birth rate coupled with a falling level of death rate. The rate of growth of population which was about 1.31 percent per annum during 1941-50 has risen to 2.1 percent during 1989-91. The chief cause of this rapid spurt of population growth is the steep fall in death rate from 49 per thousand during 1911-20 to 9.6 per thousand in 1990; as compared to this the birth rate has declined from about 49 per thousand during 1911-20 to 29.9 per thousand in 1990.

Fast growing population in the third world countries is a cause and effect of underdevelopment. In developed countries, unemployment is

of cyclical nature. India is rich in mineral ore, energy resources and has enough water resources. But India has not yet been able to fully utilise these natural resources for its economic development. Another basic characteristic of the Indian economy is capital deficiency, which is reflected in two ways. Firstly availability of the amount of capital per head is low and secondly, the current rate of capital formation is also low. This acute shortage of capital leads to slow industrial growth and less employment opportunities. Inequality in asset distribution is the principal cause of unequal distribution of income in rural areas. It also signifies that resource base of 60 percent of the household is so weak that it can hardly provide them any thing above the subsistence level of income.

In 1988, the average calorie intake was only 2,214 as compared to over 3,400 calories per day in most of the developed countries. This is slightly above the minimum intake for sustaining life. Another important feature of Indian economy is poor economic organisation. India suffers from inadequacy of financial institution in rural areas. In India most modern technique exists side by side with the most primitive methods in the same industry. In India, according to 1991 census, about 52 percent of population is literate and about 48 percent can neither read nor write. Illiteracy retards growth and a minimum level of education is necessary to acquire skills as also to comprehend social problems.

### Indian economy after independence

After India's independence, long spell of stagnation was broken with the introduction of economic planning. Since 1950s, net national product at factor cost had risen from Rs 42,454 crores to 2,02,610 crores in 1993-94. The growth of national income was 3.8 percent. India's per capita income has been rising continuously since 1950. India's per capita income at 1993-94 was Rs 1,126.

Apart from the growth in economic structure there have been significant changes in economic structure since independence.

## Growth of National Income and per capita Income at 1980-81 prices

Year	Net National Product (Rs.Cr.)	Index	Per capita	NNP
1950-51	40450	100	1.130	100
1960-61	56,600	145	1.350	120
1970-71	82210	203	1520	135
1980-81	110690	274	1630	145
1990-91	1.86450	461	2220	197
1996-97	258470	639	2760	245

## Average Annual Growth Rates

1950-51 to 1980-81	3.4	1.2
1980-81 to 1996-97	5.3	3.2

second plan priority was accorded to capital intensive manufacturing units. These industries now account for more than fifty percent of the industrial production. The transport system in India over the past four decades has grown both in terms of capacity and modernisation. The Indian road network is one of the largest in the world as a result of spectacular development of roads under various plans. The total road length comprises national highways, state highways and other roads accounted 20.4 lakh km in 1991. Progress of shipping, railways and civil aviation has been equally impressive. Though the country is presently facing an energy crisis but this sector has also gained much in terms of production. Similarly irrigation facilities in the country have increased raising irrigated area.

Since independence significant reformation has taken place in the banking and financial sector of India. The process of nationalisation was initiated after independence. First the Reserve Bank was nationalised in 1949. Thereafter in 1955, the Imperial Bank of India, a leading commercial bank of that time, was nationalised and renamed the State Bank of India. In 1959 fourteen big commercial bank were nationalised. This act of government undermined the control of big capitalists of the finance capital.

From the above argument we can conclude that the Indian economy is no longer caught in

'low level equilibrium trap.'

## Indian Planning

Indian economy at the onset of independence was overwhelmingly rural and agricultural, with nearly 85 percent of the population living in villages and deriving their livelihood from agricultural and related activities using traditional, and low productivity techniques. Immediately after the independence, the Government's main concern was to control persistent and severe inflationary pressure and alleviate shortage of essential food items which had been aggravated by the partition of the country in 1947. The Industrial policy resolution of 1948 marked a fundamental departure from the earlier policy of laissez-faire. The directive principles of state policy incorporated in the Constitution defined the broad objective of socio economic policy.

Finally, the concept of co-ordinated planning of development programmes under the auspices of the central government was accepted and the Planning Commission was set up in March 1950. The mixed economy as an institutional form prevailing in India could be looked upon as an attempt to find a solution to this problem. The mixed economy in Indian context can be characterized as essentially a capitalist economy that is modified by the direct participation as well as intervention by the state in economic activity.

## Planning in India

The first five year plan (1951-56) : The first plan emphasised, as its immediate objective, the rehabilitation of refugee, rapid agricultural development so as to achieve food self sufficiency in the shortest possible time, and control of inflation. The first plan also attempted to usher an all round balanced development which could ensure a rising national income and a steady improvement in the living standard.

The second five year plan (1956-61) : Emphasis of second Five Year Plan (FYP) was economic stability. Agriculture target fixed in the first plan was almost achieved. Consequently, the

agriculture sector got lower priority in the second five year plan. The second plan aimed at rapid industrialisation with particular emphasis on the development of basic and heavy industries such as iron and steel, heavy chemical, including nitrogenous fertilisers heavy engineering and machine building industry.

**The third five year plan [1961-66] :** The third plan set as its goal the establishment of a self reliant and self generating economy. The experience of the first two plans suggested that agriculture should be assigned top priority. The third plan accordingly gave top priority to agriculture but it also laid adequate emphasis on the development of basic industries.

The original draft outline of fourth plan prepared in 1956 had to be abandoned on account of pressure exerted on the economy by two years of draughts, devaluation of the rupee and stagflation. Instead three annual plans (1956-69) were implemented.

**The fourth five year plan (1969-74):** The Fourth Plan set before itself the two principal objectives "growth with stability" and progressive achievement of self reliance. The fourth plan aimed at an average 5.5 percent rate of growth in the national income and the objective of "growth with justice" and "Ganbi hales" (Removal of poverty).

**The fifth five year plan (1974-79):** The fifth plan prepared and launched by D.D. Dhar proposed to achieve two main objectives viz. removal of poverty and attainment of self reliance, through promotion of high rate of growth, better

distribution of income and a very significant growth in the domestic rate of saving. The fifth plan was terminated by the Janta Party before March 1978.

**The sixth five year plan (1978-85):** There were two sixth plans. The focus of the Janta government's sixth plan was enlargement of the employment potential in agriculture and allied activities, encouragement to household and small industries producing consumer goods for consumption and to raise the incomes of the lowest income classes through a minimum needs programme. When the Sixth Plan (1980-85) was introduced by the Congress government, the planners rejected the earlier govt's approach and brought back Nehru Model of growth by aiming at a direct attack on the problem of poverty by creating condition of an expanding economy. The average rate of growth in this period was 3.5 percent.

**The seventh five year plan (1985-90):** The seventh plan sought to emphasise policies and programmes which would accelerate the growth of foodgrain production, increase employment opportunities and raise productivity. The seventh plan was got a great success, the economy recorded 6 percent growth during this plan against the targeted 5 percent.

The Eighth plan was postponed by two years because of political upheavals at the centre.

**The eighth five year plan (1992-97):** The eighth five year plan was launched after a worsening BoP position and inflation during 1990-91. The plan undertook various macro policy measures to combat the bad economic situation and to undertake an annual average growth of 5.7 percent. Some of the main economic achievements during eighth plan period are: (i) an economic growth, (ii) high growth of agriculture and allied sector, and manufacturing sector, (iii) growth in exports and imports, (iv) reduction in current account deficit. The eighth plan period recorded an average rate of 5.7 percent growth against the targeted growth rate of 5.7 percent.

Ninth Plan

### Growth performance in the five year plans

	Target	Actual
1. First Plan (1951-56)	2.9%	3.6%
2. Second Plan (1956-61)	4.5%	4.3%
3. Third Plan (1961-66)	5.6%	2.5%
4. Fourth Plan (1969-74)	5.7%	3.3%
5. Fifth Plan (1974-79)	4.4%	4.3%
6. Sixth Plan (1980-85)	5.2%	3.5%
7. Seventh Plan (1985-90)	5.0%	6.0%
Eighth Plan (1992-97)	5.6%	5.7%
Ninth Plan (1997-2002)	6.5%	—



five year plan was approved by Shri K.C. Pant, the Deputy Chairman of the planning commission nearly two years after its implementation from April 1.1997. This is the second version of Ninth plan. The Ninth plan has been developed in the context of four important dimensions of state policy and against a perspective of development for 15 years. Quality of life, generation of productive employment, regional balance and self reliance summarises the main dimensions of its policy. The Ninth plan has been developed in the context of four important dimensions of state policy and against a perspective of development of 15 years. Quality of life generation of productive employment, regional balance and self reliance summarises the main dimensions of its policy. It will focus on accelerated growth, recognising a special role for agriculture, poverty elimination and employment generation. The rate of growth of population which has been over two percent in the last three decades is likely go down during the 5 year period to 1.54 percent. In order to achieve the objective of removal of the incidence of poverty and unemployment and of ensuring food and nutritional security. The value of agriculture output is

targeted to increase at annual rate of 4.5 percent in the Ninth plan. The food grain consumption is likely to increase from 195 million tonnes in 1996-97 to 298 million tonnes in 2011-12. The growth rate of yield is expected to 2.91 percent per annum over the Ninth plan period. Between 1996-97 and 2011-12 the demand for electricity is likely to increase by about 3.7 times and coal by nearly 2.6 times. The Ninth plan lowered its sights in view of the difficult economic situation prevailing in the country and there was slowdown of growth rates during 1997-98 and 1998-99 the first two years of the Ninth Plan, aiming at an average growth of 6.5 percent. The size of the national investment in this scenario rises substantially from Rs. 1.399 thousand crore during the Eighth Plan to Rs. 2.171 thousand crore at 1996-97 prices or 28.2 percent of GDP during the Ninth Plan. Private consumption expenditure grows at the rate of 6.4 percent per annum, which implies a per capita consumption growth of 4.7 per cent per annum. A target of an average 4.1 percent of GDP in respect of the fiscal deficit of the central government and of 7.8 per cent overall public sector borrowing requirement have been taken for the Ninth plan.

## Sectoral structure of growth

Sector	Eighth Plan		Ninth Plan	
	growth rate(%)	ICOR*	growth rate(%)	ICOR*
1. Agriculture & allied sector	3.7	2.3	3.9	2.2
2. Mining & Quarrying	4.1	6.3	7.2	5.9
3. Manufacturing	9.5	4.7	8.2	4.4
4. Electricity, Gas & Water	7.6	16.9	9.3	16.3
5. Construction	4.4	3.3	4.9	2.7
6. Trade	10.0	0.8	6.7	0.8
7. Rail Transport	2.4	14.0	3.9	12.9
8. Other Transport	7.5	7.5	7.4	6.5
9. Communications	13.9	7.3	9.5	7.1
10. Financial Services	8.9	0.8	9.9	0.7
11. Public Administration	4.3	8.1	6.6	5.6
12. Other Services	5.3	6.0	6.6	5.8
Total	6.5	3.9	6.5	4.0

\* ICOR - Incremental Capital Output Ratio

Investment by the private corporate sector is projected to rise to 9.1 percent of GDP as compared to 8.0 percent planned for the Eighth Plan. The fiscal consequence of the Ninth Plan is divided asymmetrically between the centre and states. The new fiscal deficit arising from gross fiscal deficit target of 4.1 percent will be substantially lower than that required for sustainability. Investment needs of Ninth Plan have been estimated at Rs. 2,170 thousand crore, out of which the share of the private sector has been projected to Rs. 1,119 thousand crores (51.6%) and that of public sector of Rs. 726 thousand crores (33.4%). Accelerated agricultural growth of 4.5 percent in the Ninth Plan with 3.82 percent growth of crop production can come about only through increased cropping intensity and higher yield. It is expected that the feasible capacity addition during the Ninth plan is likely to 40,245 MW. The base energy shortage will reduce from 11.5 percent in 1995-97 to 1.4 percent and the peak from 18 per cent to 11.5 per cent. The public sector outlay shortage for the Ninth five year plan is placed at Rs. 859,200 crore at 1995-97 prices. This represents a step up of 33 percent in real terms over the approved Eighth Plan outlay of Rs. 4,34,100 crore. Tax GDP ratio at the centre has to increase to 11.5 percent by the end of the Ninth Plan from the level of 10.3 in 1997-98. The Ninth Plan has estimated that open employment in 1997 is of the order of 7.5 million persons. Labour force is expected to grow at the rate of 2.54 percent per annum. The Ninth plan will have to plan for work opportunities for 55 million persons.

### Agriculture

Agriculture is the mainstay of Indian economy. About 64 per cent of labour force depend upon agriculture and it contributes approximately 26 per cent of gross domestic product. Agriculture include 18 percent of India's exports. Indian agriculture plays a vital role in economic development. Agriculture provides to Indian economy a large segment of national income, employment facility, food and fodder, exports and

imports, influence of industrial structure, huge capital investment etc. The three main harvesting seasons are kharif, rabi and summer.

Indian agriculture profusely depend on monsoonal rain due to lack of irrigation facilities. Since 1970-71, agricultural census on quinquennial basis has been organising by the department of agriculture and cooperation to collect essential and reliable information regarding agricultural activities. This data is used as a major source to undertake poverty alleviation programmes.

In the ministry of agriculture, the department of agricultural research and foundation (DARF) was set up in 1973 to conduct research and educational activities in agriculture, animal husbandry and fisheries. Indian council of Agricultural Research (ICAR) is the nodal organisation of the DARF to develop agricultural technologies, input material and the use of science to self sufficiency in food.

Indian agriculture is pegged by nature's vagaries, semi commercialised farming, predominance of small farmers, irregularities of monsoon, low level productivity, vast disguised unemployment, increasing pressure of population, excessive use of fertilizer and pesticides, defunct land reforms, poor techniques of agricultural production etc.

#### Features of Ninth plan 1997-2002

1. Economic growth of 6.5% per annum
2. Annual agricultural growth pegged at 3.9%
3. Export growth rate of 11.6% targeted
4. Annual import growth rate to be kept at 10.5%
5. Current account deficit to grow to 2.1%
6. Industrial growth rate targeted at 8.5% per annum
7. Public Sector pay outlay fixed at Rs. 859,200 crore
8. Priority to agriculture and rural development to generate adequate productive employment and eradication of poverty
9. Investment in agriculture to be fixed by 75% to Rs. 2,66,300 crore
10. Incidence of poverty to be brought down to 17.95% from 23.16% in 1995-97
11. Higher domestic savings rate of 29.1% of GDP

### Growth of Agricultural Sector Since 1950-51

Period	Compound annual rate of growth(%)
1951-61	3.3
1961-71	2.2
1971-81	1.1
1981-91	3.9
1991-97	2.8

The significance of agriculture in India arises from the fact that the development in agriculture is an essential condition for the development of the national economy. In first five year plan, priority was given to agriculture, but the second and third five year plans experience a bitter lesson when the failure of agriculture made the entire planning process disastrous. Again planners gave greater thrust to agriculture in subsequent plan periods. The new technology used in agricultural sector failed to give a major breakthrough in agricultural production except in wheat (5.9% per annum) and potatoes (5.1% per annum). The growth rate in food grains, however, maintained at a level of 2.4% per annum mainly because of 5.9% wheat production. Production of food grain increased from 50.82 million tonnes in 1950-51 to 200 million tonnes in 1998-99. Cereal production

was also growing at a faster rate.

In order to achieve the objectives of removal of the incidence of poverty and unemployment and of ensuring food and nutritional security, the value of agricultural output is targeted to increase at annual rate of 4.5% during the ninth plan period. The public sector investment shortfall during the eighth plan was averted during the ninth plan. The ninth plan gives emphasis on raising the capabilities of small peasants and promoting sustainable agricultural systems.

For promotion of agricultural production, the budget 1999-2000 pronounced policies on water, for improving flow of agricultural and rural credit, to overcome post harvest shortage and marketing infrastructure, to accelerate reforms in land holding, to solve the problem between demand and availability of fertilizer, and schemes for the development of degraded wastelands.

### Green Revolution

Agriculture is the backbone of Indian economy. It contributes about 26.1 percent to national income and provides employment to around 65 percent of total work force in the country. Indian agriculture has been the source of supply of our leading industries. Investment in agriculture in irrigation facilities, tractors, ware houses etc. have

### growth in production of principal crops since independence (1950-98)

	(Crops in million tonnes)			Annual rate of growth (%)	
	1949-50	1964-65	1997-98	1949-50 to 1964-65	1964-65 to 1997-98
1. All food grains of which	55	89	198	3.2	2.4
Rice	24	39	82	3.5	2.6
Wheat	6	12	66	4.0	5.9
Coarse cereals	17	25	31	2.2	0.3
Pulses	8	12	14	1.4	0.3
2. All non food grains of which					
oil seeds	5	9	24	3.3	2.8
Sugar cane	50	122	278	4.3	2.8
Cotton*	3	6	14	4.6	2.0
Potato	2	4	24	4.3	5.1

\* Cotton is in million bales of 175 kg each.

been rising continuously, increasing the demand for industrial output and adding to the nation's capital stock. The significance of agriculture in India arises also from the fact that the development in agriculture is an essential condition for the development of the national economy. Economic growth means a higher rate of growth of Gross National product and it obviously impossible to attain a higher rate of growth in the economy unless there is rapid growth in both the agricultural and non-agricultural sectors.

The 'new agricultural strategy' during 1954-65 is the only cause for starting green revolution in India. Green revolution implies to improve agricultural production within a limited period and maintaining a high level of agricultural production over a long period of time. To improve agricultural production, green revolution envisages following steps : They are use of high-yielding varieties (HYV) of seeds, use of chemical, fertilizers, pesticides, use of improved technology, multiple cropping, irrigation facilities, providing agricultural credit to farmers, suitable price mechanism for agricultural production and land reforms.

The new technology did not bring a major break through in agricultural production except that in production of wheat (5.9 percent per annum) and potatoes (5.1 per cent per annum). The growth rate in food grains was, however, maintained at a level of 2.4 percent per year mainly because of the high yield growth rate of 5.9 per cent in wheat.

"According to data per capita availability of cereals, and pulses indicate an over all improvement in per capita availability of food grains from about 419 grams per day during 1950-51 to 499 during 1996-97 and 1997-98. This indicates nearly 19 per cent increase in per capita availability during the 47 year period. The per capita availability of cereals increased from 354 grams during 1950-51 to 463 grams during 1996-97 and 1997-98. But in case of pulses, the per capita availability declined from 64.7 grams per day during 1950-51 to 35.6 grams during 1997-98. This indicates a decline of 45 per cent in the per capita availability of pulses during the 47 year period.

### Trends in the production of foodgrains in India

Year	Production (million tonnes)
1970-71	108
1972-73	95
1978-79	132
1979-80	108
1990-91	179
1996-97	198
1997-98	194
1998-99	200

Similarly, the per capita consumption of cereals declined from 110 grams per day in 1950-51 to 90 gms per day in 1997-98. Total of nearly 25%.

Progress during 1997-98 : Production of food grains increased from 50.52 million tonnes in 1950-51 to 200 million tonnes in 1998-99 which was a nearly four fold increase. Cereals production has been growing faster than the rate of growth of population but in case of pulses growth rate of production has lagged behind the population growth rate. Cereals and millets constitutes only 25% and 33% of the total food by the high income group and middle income groups respectively. On the other hand cereals and millets constitute more than 50% of total food among the low income group.

Livestock Wealth : On an average, 100% from livestock in India is about 25 per cent of the gross value of output from agriculture. The value of milk and milk product was 79 per cent of the stock. Other constituents of livestock are 10% poultry, 72% animal and drugs, 13% etc. Growth of livestock was not great in 1997-98.



## Average annual growth rate of production

	1974-79	1980-85	1985-90	1992-97
Basic industries	8.4	8.3	7.4	6.8
Capital Goods Industries	5.7	7.1	15.7	8.9
International Goods Industries	4.3	6.2	5.5	8.5
Consumer Goods Industries	5.5	6.5	6.6	6.6
(a) durables	6.8	15.2	12.1	13.2
(b) Non durables	5.4	5.3	5.4	4.9

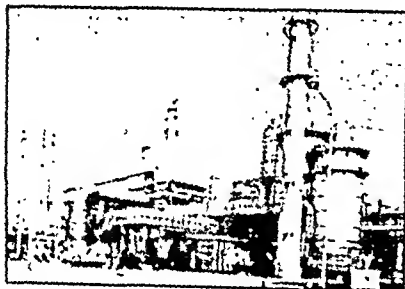
livesstock resources. The reasons for the poor conditions of livestock in the country are not economic but religious and social.

According to an estimation, about 100 million animal are in surplus and their maintenance costs are 30,000 crores per year.

## Industry

In any country be it developed, semi developed or advanced, the industrial sectors forms the sheet anchor for the generation and development of the country's productive forces. There is a strong case for the industrialisation of countries like India with vast manpower, large and varied resources and continental dimensions.

The first plan was not important as far as industrial development is concerned. Of the total expenditure of Rs 1,960 crores in the plan the industrial sector received Rs 55 crores which is 2.8 per cent during the second five year plan (1956-61) Three new steel plants were set up in the public sector and the capacity of the two



existing steel works in the private sector doubled. In this plan new steel plant got set up. The share of industrial sector was Rs crore which is 20.1 per cent of the total plan outlay Rs 4,672 crore. In the third plan and the annual plans the progress was significant. Though after for nearly three years, the economy was subjected to considerable stress and strain. Many industries were severely affected by the shortage of raw materials and exponent arising from the paucity of external aid in 1965. Total expenditure under the third plan was Rs 8577 crore of which the share of industrial sector was Rs 1,726 crore (20 per cent). In the fourth plan (1969-74) the performance of the industrial sector fell short of expectations, both in terms of production and investment. On an average, the growth rate in industry was around 5 per cent which was much below the targeted growth rate of 8 per cent envisaged in the plan. Main objectives of fifth plan (1974-79) were self reliance and growth with social justice. The revised fifth plan provided a total outlay of Rs 10135 crore on organised industry and mining, Rs 9,600 crore in the public sector and Rs 535 crore for village and small industries. This accounted for nearly 26 per cent of the public sector outlay of the fifth plan. During this period annual growth rate was only 5.3% which was much below the target. The sixth plan (1980-85) intended to work within the over development strategy of structural diversification, modernisation and selfreliance. The aggregate resource allocated to industry and mining worked to be Rs 22,187 crore i.e. 22.8 per cent of the total progress of the industrial growth during the sixth plan. The total investment in industry in seventh plan (1985-90) was Rs 22,400 crore or 12 per cent of the total plan outlay. The actual average rate of growth during the seventh plan worked out at 8.4 per cent per annum. Thus the target was exceeded, as the expected growth rate was 8 per cent.

In the eighth plan (1992-97) the economy was liberalised. Eighth plan believed that the desired growth of different sectors could be achieved primarily through modification in industrial structure.

fiscal policies. During the Eighth plan the private sector had come of age and had developed considerable entrepreneurial, managerial, technological, financial and marketing strengths. It means eighth plan was the reversal of initial phase. The overall outlay envisaged in the eighth plan for public sector was Rs 40,670 crores. The basic purpose of this allocation was to upgrade technology in this sector and raise it to international levels. The over-all industrial growth rate was fixed at 8 per cent per annum for the eighth plan.

## Industrial Policy

At the time of independence, Indian industries were facing many problems such as shortage of raw materials, bad industrial relations and marketing facilities etc. However, after the independence government made various industrial policies to solve their problems.

**First industrial policy resolution of 1948 :** The first industrial policy gave emphasis to industry where state had a monopoly (arms and ammunition etc.) mixed sector industrial (coal, iron and steel etc.) government controlled industries, (automobile, heavy machinery etc.) and private industries. The industrial policy resolution also stressed the importance of cottage and small-scale industries.

The resolution stressed the importance of progressive Indianisation of foreign concerns. It also appealed for healthy labour management relations. The policy outlined a mixed economy for India.

**Industrial policy resolution of 1955 :** This resolution changed mixed economy approach by giving more importance to public sector. The private sector is given a fair and non-discriminatory treatment in the resolution. It encourages village and small industries. The resolution brings out the importance of removing regional disparities in our country. A sufficient attention is paid by the resolution for providing facilities to labourers.

**New industrial policy (1970) :** The government announced a new industrial policy in February 1970. The NIPs was in accordance with the

recommendation of the Dutt Committee and the Administrative Reforms Commission. Following are the basic features of the NIP-70.

1. This policy provided that there should be a list of core industries consisting of basic, critical and strategic industries in economy.
2. All new investment propositions of over Rs 5 crore shall be deemed to be in the heavy investment sector.
3. The joint sector concept should be accepted in principle.
4. The existing policy of reservation for the small sector will be continued.
5. The exemption limit from licensing provision will be raised to Rs 1 lakh.

**Industrial policy of 1980 :** The main objectives of 1980 industrial policy were the revival of the economy, effective operational management of public sector, promotion of industries in the rural areas, removal of regional imbalances, concessions for industries engaged in research and development of optimum utilisation of installed capacity.

**New Industrial Policy 1999 :** The basic aim of the new policy were to  
(a) consolidate the strengths built up during the

## Top 10 Enterprise in terms of Investment

	Rs crores Investment as on 31-3-1998
1 National Thermal power corporation Ltd	16,160
2 SAIL	15,140
3 ONGC	10,600
4 Indian Railway finance corporation	9,500
5 Power Grid corporation of India	8,600
6 National Hydro Electric Power Corporation	5,500
7 Rashtriya Ispat Nigam Ltd.	4,500
8 Nuclear Power Corporation	4,500
9. MLNL	4,500
10. Rural Electricity Corporation	4,500
Total	81,500



last four decades of economic planning and to build on the gains already made;

- (b) correct the weakness that may have crept in the industrial structure as it has developed over the last four decades;
- (c) maintain a sustained growth in productivity and gainful employment;
- (d) attain international competitiveness. Government has decided to liberalise industrial licensing policy, foreign investment, foreign technology agreement, public sector policy and MRTP act for the sake of realisation of objective of the policy. The new industrial policy has abolished industrial licensing for all industries except 18. The new industrial policy has also scrapped the asset limit of MRTP companies.

## Small Scale Industries

The small scale industrial sector plays a pivotal role in the Indian economy in terms of employment and growth. Since independence in spite of stiff competition from the large sector, government is not giving due priority to small sector. The number of small-scale units have grown up from 4.2 lakhs in 1973-74 to 28.57 lakhs in 1996-97. During the same period of 23 years, employment has grown up from 4 million to 16 million and output has increased from Rs 7,200 crores to Rs 4,18,863 crores. The average annual growth rate of employment in the small scale sector for the period 1980-81 to 1990-91 works out to be 5.8 per cent and that of production to be 18.6 per cent. The output employment ratio for the small

scale sector is 1 : 1.4. The value of export from small scale sector increased to Rs 1,643 crores in 1980-81 and to a record high figure of Rs 52,230 crores in 1996-97. The share of export from small scale sector represents about 84 per cent of total exports in 1996-97.

**Small sector industrial policy :** The new industrial policy was announced on August 1997. Its main objective is to impart more vitality and growth impetus to the sector to enable it to contribute its mite fully to the economy, particularly in terms of growth of output, employment and exports.

**Village and small industries in the Eighth plan :** The eighth plan allocated a sum of Rs 6,334 crore i.e. 1.5 per cent of the total public outlay for the development of villages and small industries. However the actual expenditure was Rs 7,094 crores i.e. 1.4 per cent of the total public outlay. Production of small scale industries reached a peak of Rs 418,863 crores. The village and small industries were able to provide employment to 16 lakh person in 1996-97. The growing share of small scale industry in the total output of the modern sector is indicative of the fact that the higher productivity and higher earning areas are in the village and small industries are getting strengthened. A highly praiseworthy achievement of the village and small industries is their contribution to exports to the tune of Rs 52,230 crores in 1996-97 i.e. 44 per cent of total exports. This proves that village and small scale industries are very important in our effort to globalise the Indian economy.

According to Ninth plan, the major problems faced by small scale industry are (a) inadequate flow of credit (b) use of obsolete technology (c) poor quality standards and (d) inadequate infrastructure facilities. According to the ninth plan, production of small scale industries is expected to increase at an annual average growth rate of 10 per cent. Regarding employment, total employment in the small scale industry will increase from 15.75 million to 16.6 million, indicating additional employment generation of 0.9 million. Overall, the rate of growth of employment will be of the order of 3.0 per cent per annum which is higher than

the rate of growth in any other sector of the economy visualised in the ninth plan. But the most encouraging aspect of the small scale industrial sector is in export which is expected to go up from Rs 52,230 crores in 1995-97 to Rs 104,00 crores in 2001-02, indicating an average annual growth rate of 14.7 per cent. The most important contributors are small scale industries and handicrafts. During 1997, on the recommendation of Abid Hussain Committee, the government has raised the investment limit on plant and machinery for small units and ancillaries from Rs 60-75 lakhs to Rs 1 crores and that for tiny units from Rs 5 lakhs to Rs 25 lakhs. Abid Hussain committee recommended complete de-reservation of the products of the small sector. The government will therefore, review the list of reserved products continually and take action accordingly.

### Public Sector in India

Before 1947 there was virtually no public sector in the Indian Economy. The railways, the post and the telegraphs, the port trusts, the ordinance and aircraft factories and a few state managed undertakings were working as public enterprise. As on March 31, 1998 there were 240 central government undertakings excluding banks, financial institutions and departments like the railways, ports etc. Since 1951 the capital investment has increased from Rs 29 crores to Rs 2,04,050 crores on 31st of March 1998.

In terms of investment, National Thermal Power Corporation Ltd. tops the list of top 10 enterprises in the central public sector in India, closely followed by SAIL. In terms of gross turnover in

1997-98, Indian Oil Corporation tops the list with a total turnover of 59,220 crores followed by Bharat Petroleum Corporation (Rs 20,700 crores).

Except for the short span of five years (1958-59 to 1973-74) in which growth rate of investment was about 10 percent throughout, the rate of growth of investment averaged between 16 and 19 percent per annum.

The total number of workers employed in public sector in 1971 was 71 lakhs, but by March 1997, their number grew to about 195 lakhs. Since employment in the public sector is confined to the organised sector (90% of labour is employed in the organized sector). Public sector employs 70 percent of workers employed in organised sector of the Indian economy. Operation of public sectors extended from basic and capital goods like steel, copper, zinc to consumer goods like textiles, hotel services watches, bread etc. The foreign exchange earnings of the public sector enterprises have been rising from Rs 35 crores in 1955-56, to Rs 5,830 crores in 1984-85 and finally to Rs 18,150 crores in 1997-98. The export performance of the public sector is commendable.

**Internal resources :** During the sixth plan (1980-81 to 1984-85), internal resources amounting to Rs 14,710 crores were generated. Rs 2,940 crores per annum on average. During the seventh plan internal resources of the order of Rs 29,750 crores were generated. During the Eighth plan, PSUs generated internal resources of the order of 1,31,450 crores, a credible record indeed. At the same time, out of 235 operating enterprises during 1997-98 as many as 91 enterprises did not generate internal resources.

### Growth of Installed capacity in public utilities since 1950-51 Electricity supply (in MW)

Year	Thermal	Hydro	Nuclear	Total
1950-51	1,150(67)	550(33)	-	1,710(100)
1970-71	7,910(54)	6,380(43)	420(3)	14,710(100)
1995-97	61,050(72)	21,640(26)	2,220(2)	84,910(100)
2001-02*	96,600(72)	31,450(25)	3,100(3)	1,25,150(100)

\* Projected



**Growth of Investment in central government Enterprises**

As on March 31	No. of units	Total investment (Rs Crores)
1951	5	29
1961	47	950
1980	179	18,150
1990	244	99,330
1998	243	2,04,050

**Gross profit of public sector :** Gross profit before tax in 1970-71 was about Rs 150 crores or 4 percent of total capital employed amounting to Rs 3,600 crores. In fact, gross profit before tax ranged between 11 to 31 percent of the capital employed between 1981-82 to 1993-94. Gross profit before tax rose almost continuously till it touched as high as Rs 36,000 crores or 162 percent of the capital employed in 1997-98 amounting to Rs 2,23,050 crores. It is useful to remember that the capital employed in the central PSUs was generally raised by way of long term loan. Accordingly, the yield rate of central represented by net profit after tax was pitifully low. It should be noted that bulk of profit of public sector units comes from petroleum sector enterprises. In 1997-98, 134 profit making enterprises earned a total net profit of about Rs 20,270 crores and 100 loss making units incurred a total loss of 6,540. One thing which

**Employment in the public sector in 1997**

	Lakhs	Percent of total
1. Manufacturing	16.6	8.5
2. Transport, Storage and communications	30.9	15.7
3. Financing, Insurance, real estate and business services	12.9	6.6
4. Government administration, Community, Social and personal services.	97.5	50.0
5. Others Sectors	37.7	19.2
Total	195.6	100

should be noticed that Government is achieving a higher profitability ratio by increasing the administered price of goods produced in the public sector, rather than through reducing costs, improving efficiency and capital utilisation. It is an unhealthy trend. Because of this trend public sector will lose its objective.

**Revival of sick Public Sector Units :** In the context of New Industrial Policy 1991 the government bought out a monograph on the performance of Central Public Sector Enterprises and decided to refer the chronically sick enterprises to the Board of Industrial and Financial Reconstruction (BIFR) for the formulation of revival/rehabilitation schemes. Till the end of March 1998, 62 public sector units have been referred to BIFR which has so far, approved revival of packages in respect of 21 Public Sector Units. The Government has also been opening out certain important and strategic area to the private sector. The Power Sector is being opened to the foreign companies. Similarly, the Government has to invite multinational in the telecommunication sector.

**Disinvestment of public sector undertaking :** The 1991 Industrial Policy stated that the disinvestment of a part of the Government share holding in selected public sector units to provide financial discipline and improve their performance.

The concept of PSU disinvestment (or simply disinvestment) is to be understood for restructuring of PSUs so that the drain on the budgetary resources can be stopped. Disinvestment is a radical experiment of privatisation.

The sharp criticism of the Government regarding the process of disinvestment by the Public Account Committee and in view of the Rana Rajan committee, the Government set up disinvestment Commission in August 1996 to advise on the extent strategy methodology and timing for disinvestment in each PSU. Since the beginning of disinvestment in 1991-92, for a total of Rs 12,957 Crores have been collected by disinvestment till 31st March 1997. During 1998-99 by a process of cross holding Rs 9,000 crores have been realised as disinvestment proceeds for

1999-2000, Government has made a target of 10,000 crore rupees by the disinvestment of public sector units

#### Memorandum of understanding (MoU) :

The main aim of MoU is to bring about a balance between autonomy and accountability. The New Industrial Policy 1991 extended the scope of MoU to all public sector enterprises except that those public enterprises which were referred to the BIFR. The main goal of the MoU policy is to reduce the 'quantity' of control and increase the 'quality' of accountability. The real purpose and MoU is to manage public sector enterprises by management by objectives rather than management by control. 108 public sector enterprises had signed MoUs for the year 1997-98. According to the Economic Survey on the basis of self evaluation by 108 public sector enterprises were rated excellent, 25 very good; 13 good, 22 fair and only 3 were rated poor. On July 4, 1997 a historical decision was taken by Central Government for 9 big industries. These big industries which is known as Navratna are Oil India Corporation, Hindustan Petroleum Corporation Ltd, Bharat Petroleum Corporation Limited, SAIL, BHEL, ONGC, VSNL, NTPC, and Indian Petrochemicals Corporation Ltd. In this group (Navratna), Government has included two more industries. These are gas authority of India Ltd and MTNL. The main aim of establishing Navratna is to give outcoming to these industries. Now they can take major decision like mobilising resources, capital expenditure, technological development and they can also take decision to joining venture up to 200 crores. The profit target of Navratna is 10,000 crores annually. After establishing navratna, Government had taken one more decision to remove red tapism and give more autonomy by setting up 'Mini Ratna' on 3 October 1997. Mini Ratna is divided into two categories. In the first category the Government has put up those industries which are achieving a profit of more than 30 crores like Oil India Ltd, shipping corporation of India, BALCO, MMTC, STC etc. In the Second Category, these type of industries which are creating profit continuously for 3 years like Earth Movers Ltd,

Modern Food Industries are there

#### Power

Electric power is an essential ingredient of economic development and it is required for commercial and non commercial uses with the growth of population. In the use of modern gadgets in daily life, it is quite natural that the demand for electricity for domestic use should grow rapidly. A marked feature is the increasing use of electricity in agriculture. Demand of electricity in agricultural sector rose from 4 percent to 32 percent. There are three main source of generation of electric power viz. thermal, hydel power and nuclear power.

**Projection of power in Ninth Plan :** The Planning Commission estimated (a) The installed capacity requirement in the year 2002 1,31,730 MW (b) The installed generation Capacity (as on March 1997) 84,910 MW (c) Capacity addition required during the Ninth plan (1997-2002) 46,820 MW. As against the given statements, planning commission assessed that a capacity addition of the order of about 40,250 MW would be feasible during the Ninth plan period. This would consist of

Central Sector	11,910 MW (29.5%)
State Sector	10,750 MW (26.7%)
Private Sector	17,590 MW (43.75%)
	40,250 MW (100%)

#### Power Sector Reforms

The resources available in the domestic capital market are not sufficient. Hence it is necessary to take proper initiative to boost this sector. In 1991, the govt. allowed private participation in power generation. The Indian Electricity Act, 1910,



and Electricity (supply) Act, 1998 were amended.

Efforts taken by the Govt. of India at power sector reform includes. (i) allowing private sector participation in power generation in 1991. (ii) restructuring State Electricity Boards (SEBs) since, 1993; (iii) private sector participation in transmission and distribution since 1998; (iv) setting up of Central Electricity Regulatory Commissions, (SERC) since 1998; (v) policy to supply 'liquid fuel' for power generation — so far Naptha, LSHS, and LSFO liquid fuels are approved. Since February 1995, competitive bidding has been adopted for awarding power projects. And the Ministry of Power (MoP) decided to consider 'Mega Projects' with a capacity of 1000 MW or above for supplying power to more than one state. These projects are awarded through government-to-government negotiations instead of competitive tenders.

The government of India has received 245 proposals from private companies for capacity addition of 93,600 mw with a total of Rs 3,79,000 crores. Of this foreign proposals were 194 with an investment of over \$75 billion (Rs 2,63,000 crores) and for generation of about 75,000 MW of installed capacity. However, there are only 14 power projects which are under construction with a total capacity of about 3,500 MW against the ninth plan projection of 17,590 MW.

### Indian Railways

Indian Railways, is the country's biggest nationalised enterprise and one of the largest

railway networks of the world, with 63,000 route kms, approximately 7,00010 locomotives, 30,000 passenger coaches, nearly 3,00,000 wagons and nearly 16 lakh staff. The system carries 11 million passengers and 1.2 million tonnes of freight on an average everyday, for long haul freight movement in the bulk and long distance passenger traffic for mass rapid transportation in the suburban areas. It occupies a unique position in Indian Economy.

**Railways in Eighth Plan :** The Eighth Plan accorded top priority to replacement of average assets, maintenance of existing assets and completion of essential ongoing projects which helped to add transport capacity. Emphasis was also laid on investment required for technological upgradation and modernisation and computerisation. The Eighth plan provided for Rs 25,000 crores for the period 1992-97 but the actual outlay was Rs 32,130 crores. Two promising developments in the Eighth plan were. (a) the performance of container cooperation of India Ltd. Which registered a compound annual growth rate of 33 per cent and (b) the completion of 760 km long broad gauge Railway project involving four beneficiary states.

**Railway Development in Ninth plan :** According to Ninth plan the railways will concentrate on multiplexing the electrification of dense corridors, improvement in reliability, of containerisation and optimisation of terminal operations. As the railways share in total transport

#### Progress of Railways since 1950-51

Particulars	1950-51	1960-61	1970-71	1997-98
1. Route length (km) delete	53,600	56,200	59,800	62,490
2. Electrified Route	390	750	3,700	13,490
3. Passengers originating (millions)	1,290	1,600	2,430	4,348
4. Goods originating (million tonnes)	93	156	197	429
5. No. of locomotives	8,210	10,620	11,160	7,206
of which diesel	17	180	1,170	4,496
electric	72	130	600	2,646
6. No. of coaches	19,630	28,440	35,150	39,884
7. Number of wagons (000)	206	308	384	264

the economy has been declining over the years, the Ninth plan proposes to take appropriate actions to influence (a) the nodal choice through relative pricing based on social costs and (b) augment the capacity and improve the productivity of the railway system. The investment strategy during the Ninth plan would be (a) speedy completion of the ongoing projects (b) highest priority to multiplexing and electrification of the system (c) adoption of a whole range of cost control measures ranging from employment restraint to prior inventory management (d) the upgradation of safety infrastructure (e) increasing the private sector participation.

## The Foreign Trade of India

Trade of a developing country like India contributes a lot for economic welfare of the people and a development of resources. Foreign trade is an index of the country's economic progress.

The total value of India's international trade has gone up from Rs 1,2500 crores in 1950-51 to early Rs 19,000 crores in 1980-81 and to Rs 76,840 crores in 1997-98. But much of this increase was concentrated in the last 10 years or so. For instance, between 1951 and 1971, the total value of foreign trade rose only 2.5 times, it was only between 1974-75 and 1997-98 that there was considerable increase in the total value of India's trade. This is explained by increase in the total value of India's trade. This is explained by increase in the quantum of trade as well as rise in the prices of goods constituting imports and exports. In spite of this tremendous growth India's share in the world trade was 0.06 percent in 1995.

The value of India's imports has been continuously rising since 1951, for various reasons, such as (1) rapid industrialisation necessitating increasing import of machinery and equipment (2) regular imports of foodgrain from 1958-59 to 1972-73 under P.L. 480, (3) Policy of liberal imports on the pretext of export promotion, (4) periodic hike in crude oil prices by OPEC since 1973 from a little over \$ 2 to nearly \$ 27 per barrel till 1979-80.

During the first 15 years, there was no

increase in exports. In fact there was even a decline. It was only after 1967 that exports really started picking up after devaluation in the rupee in 1966. After devaluation in the rupee in 1966, Indian export goods got a price advantage. Moreover, the government entered into a series of bilateral agreements with socialist countries which gave a boost to exports. The Government introduced a series of fiscal and cash incentives to boost exports. These factors explain the very rapid growth of exports in the 1970's. But the increase in exports was never adequate the last 47 year period. The situation of surplus trade was worsened further. Average trade of surplus trade was worsened further. Average trade deficit was Rs 13,541 crores.

There has been a slowing down in the growth of both exports and imports during 1995-97 and 1997-98. Export growth which had reached a record high level of 20.8 percent during 1995-96 slumped to 4.1 percent during 1996-97 and further dipped to 2.6 percent during 1997-98. Major probable factors during the period 1992-93 to 1995-97 for the slowdown in exports are (1) depressed nature of world market (2) saturation of developed countries markets for electronic goods which have been most dynamic export sectors (3) increased protectionism by industrialised countries in area of textiles and clothing (despite GATT and WTO).

## Balance of Payment

"The BoP of a country is a systematic record of all economic transactions between the

Average annual imports of principal commodities (Rs in cr.)		
	1985-85 to 1989-90	1990-91 to 1995-97
1. Foodgrains	516	323
2. Machinery	6,415	13,244
3. Mineral Oils	4,498	22,743
4. Metals	2,450	6,197
5. Chemicals-drugs & medicines	1,855	7,162
6. Fertilizers	1,114	6,353
7. Pearls and precious stones	2,405	2,531

'residents' of a country and rest of the world" - according to the RBI. The BoP of India can be classified into (i) BoP on current account and (ii) BoP on capital account.

The deficits in BoP are a serious matter for the economy of a country. The large deficit is a pressure exerted on the foreign exchange reserves of the country. These foreign exchange reserves are comprised of foreign currency assets of the RBI, gold holdings of RBI and special drawing rights (SDR) of IMF. The BoP crisis take such a turn that the foreigners lose confidence in the country's capacity to cope with it.

The Govt of India (GoI) has undertaken several measures to reduce BoP deficit. They are : crisis management (gold was made use, devaluation of Rupee, action to compress imports, seek foreign exchange to weed out the situation); reform of the economy (external sector, trade policy, public finance, trade, stock exchange, etc). To cope with BoP crisis, the GoI had taken following measures. They are : (i) Trade/Exim policy 1997-2002 (announced) (ii) Promote trade with SAARC countries, free-trade agreement with Sri Lanka, creation of a South Asia Free Trade Area (SAFTA),

(iii) initiative given to software exports, (iv) post-Pokhran-II economic sanctions were mitigated by the Resurgent India Bonds (RIBs).

During 1950-91 India always experienced trade deficit. There were only two exceptional years when there was a small trade surplus. The trade deficit has been continuously widening, except during the fourth plan when the Government made a successful effort to reduce imports and promote export. During the fourth and fifth plan periods India had experienced favourable balance of payments only because of net flow of funds from invisible, specially inward remittance of funds by Indian nationals residing abroad. During 1980-81 total trade deficit was of the order of 30,456 crore. During 1990-91 to 1996-97 the deficit in the current account aggregated to Rs. 79,131 crores.

Government announced Export-Import policy in 1985. The basic aim of the new policy were (a) facilitate production through easier and quick access to imported input (b) bring about import continuity and stability to Exim policy (c) strengthen export production base (d) facilitate technological upgradation (e) effect all possible saving in imports. The business houses took full advantage of the situation and imported all kinds of items which were not necessary. In this wave of liberalisation even in areas where indigenous machinery was produced by BHEL, imports were allowed. All this was done in the name of hi-tech and upgradation of technology. At the outset, it should be realised that the problem of adverse balance of payments of India is essentially due to huge trade deficit which in turn is partly the result of persistently rising imports and partly due to slow rising export.

## Import Policy

Capital goods, raw minerals, intermediate components, spare parts, accessories, instruments and other goods may be imported without any restrictions except to extent of such imports as regulated by Negative list of Imports. These goods which are importable without any restriction, may be imported by any person whether he is an individual user or not. All other second hand goods, etc.

## Balance of payments 1994-95 to 1997-98 (US \$ million)

	1994-95	1996-97	1997-98
1. Export	26,855	32,311	33,764
2. Imports	35,904	43,670	48,063
3. Trade balance	-9,049	-11,859	-14,299
4. Invisible (net) (Unrequied)	5,680	5,460	10,638
5. Current Account Balance (3-4)	-3,369	-5,899	-3,661
6. Capital Account Total (net)	8,013	2,963	9,479
As percent of GDP			
Exports	8.8	9.7	9.4
Imports	11.7	13.1	13.8
Trade balance	-2.9	-3.4	-4.0
Invisible balance	1.9	1.6	3.0
Current Account Balance	-1.1	-1.8	-9.0

in capital goods, may be important in accordance with a public notice or a licence issued in its behalf.

### Export policy

After liberalisation, specific steps have been taken for Export Policy. Trade policy reforms like simplification and streamlining of procedures and reduction of items in the special Import licence to provide premium and incentive to exports have created a freer environment for trade, strengthened export production base and removed procedural irritants. Imports are being gradually liberalised to facilitate flow of raw materials and inputs to the exports sector besides widening and modernising the indigenous production base.

Export promotion industrial park scheme has been implemented to support state government efforts in export promotion. India Brand Equity Fund has been launched to create brand image for Indian export products abroad. Encouragement being given for achieving higher quality standards in exports and ISO norms

**Export processing zone :** The units undertaken to export their entire production of goods may be set up at Export Processing Zones (EPZ) which have been set up as special enclaves. Export processing zones are intended to provide an international duty free environment for export production at low cost. Such zones set up specially for promotion of export of electronics, hardware and software have been named Electronic Hardware Technology Park (EHTP) and Software Technology Park (STP). Export oriented units (EOU) scheme is complementary to the EPZ scheme in that it adopts the same production regime and offers a wide option in location with reference to factors like source of raw materials, ports or exports, availability of technology skills etc. India has Seven Export Processing zones (EPZs) at Kandla (Gujarat), Santacruz (Maharashtra), Cochin (Kerala), Chennai (Tamil Nadu), Noida (UP), Falta (West Bengal) and Iskconapatnam (AP). Each zone provides basic infrastructural facilities. In addition to that a whole

range of fiscal incentives and custom clearance facilities are offered within zone. Export from Eou and EPZ was 15,310 crore during 1997-98

### EXIM Policy (1999-2000)

The Union Commerce Minister Rama Krishna Hegde, has recently launched the Second generation of economic reforms bringing into effect the revised exim policy 1999-2000 from April 1. The modified exim has attempted to hasten the integration of Indian economy with global economy. India's international commitment to WTO and major trade partner require to remove all licensing curbs in import by 2003. Government has proceeded in that direction by placing 894 additional items on the open general licence (OGL) or free-import list including consumer goods, textiles, cosmetics, personal computers. Another 414 items have been moved from the restricted list to the items that can be imported freely against a special import licence (SIL), which can be procured at a premium. Only 667 items remain under the restricted list, substantially down from 2714 in 1997, when India signed the WTO agreement. The threshold limit for the Zero duty export promotion capital goods scheme has been brought down from Rs 20 crore to Rs 1 crore for the chemicals, plastics and textile sectors. This will benefit small exporters in these sector. To encourage

### Classification of Indian Exports (Rs in crores)

	1980-81	1995-97
1. Agriculture and allied products	2,057 (30.6)	25,040 (21.1)
2. Ores and minerals	413 (6.2)	3,185 (2.7)
3. Manufactured goods	3,747 (55.8)	88,528 (74.5)
4. Petroleum products	28 (0.4)	1,832 (1.5)
5. Others	465 (6.9)	222 (0.2)
Total	6,710 (100.0)	1,16,807 (100.0)

## Annual increase in Exports and Imports during 1995-96 to 1997-98 in million USD

	Export	Growth (%)	Imports	Growth (%)
1995-96	31,797	20.8	36,678	28.0
1996-97	33,106	4.1	38,548	5.1
1997-98	33,980	2.6	40,779	5.8

gems and jewellery exports, the exim policy has allowed duty-free import comprising of consumables up to certain limits. This provision has also been extended to handicrafts and leather for achieving a higher unit value realization. There would be no additional customs duty on import of capital goods under the zero duty export promotion capital goods scheme in the manne and electronics sectors. The policy envisages a 'gold' status for all those who have attained for three successive years. The criteria of an export trading house, or 'star' or 'Super Star' trading houses. Such a status would enable the awardees to enjoy additional benefits in perpetuity. In another significant measure, all export processing zones are to be converted into Free Trade Zones from July 1 this year. The Santacruz Export processing zone in Mumbai accounting for 62% of total export from all EPZs will be the first to become a free Trade Zone.

## Foreign Investment in India

There are two ways by which a country can invest in another country i.e. collaboration, and direct investment. During the early phase of the planning era our policy towards foreign collaborations remained restrictive and selective. Consequently, during 1961-70 a total of 2,475 foreign collaborations were approved and during the next decade (1971-80) another 3,041 collaboration were sanctioned. It was only during the eighties that government relaxed its policy towards foreign collaborations. In 1983, Government announced Technology Policy statements. Its aim was to acquire imported technology and ensure that it was the latest type appropriate to the requirements and

resources of the country. These relaxations resulted in a larger inflow of foreign direct investment and, consequently, the number of approvals during the decade (1981-90) reached a record figure of 7,346 involving a total investment of 1,274 crores.

After the announcement of New Industrial Policy (1991), there has been acceleration in flow of foreign capital in India. According to available data, during 1991-92 to 1998-99, total foreign investment flows were 30.15 billion dollars out of which about 12.88 billion dollars (36.2 per cent) were in the form of Foreign Direct Investment and the remaining 17.27 billion dollars (56.8 per cent) were in the form of portfolio investment.

According to data the direct foreign investment proposals in 1997 were 15.75 billion dollars (Rs 57,145 crores) as against a meagre amount of 325 million dollars (Rs 739 crores) in 1991. The total direct foreign investment approved in 1991 till 1998 amounted to Rs 1,89,968 crores against just 1 billion dollars (Rs 1,274 crores) approved during the whole

## Countrywise Foreign Investment Approved

(Aug 1991 to Aug. 1998)

Country	Amount (Rs cr.)	% of total
1. USA	42,030	27.5
2. Mauritius	17,941	11.7
3. UK	11,981	7.8
4. NRIs	7,425	4.8
5. Japan	7,213	4.7
6. Germany	6,461	4.2
7. South Korea	6,031	3.9
8. Malaysia	5,444	3.6
9. Israel	4,227	2.8
10. Belgium	3,905	2.6
11. Netherlands	3,724	2.4
12. France	3,337	2.2
13. Australia	3,337	2.2
14. Singapore	2,988	2.0
15. Italy	2,633	1.7
Other	44,831	25.6
Total	1,73,508	100

### Direct foreign investment : Inflows Vs Approvals

	Approvals		Actual flows croreVs million		Actual flows % of Approvals
	Rs Crores	US \$ million			
1991	739	325	351	155	47.7
1992	5,256	1,781	675	233	13.1
1993	11,189	3,559	1,786	574	16.1
1994	13,591	4,332	3,009	958	22.1
1995	37,489	11,245	6,720	2,100	18.1
1996	39,453	11,142	8,431	2,383	21.4
1997	57,149	15,752	12,085	3,330	21.1
1998	25,103	6,132	8,433	2,073	33.8
1991-98	1,89,968	54,268	41,490	11,806	21.7

1997-98. Trend shows that total long-term debt has indicated a tendency to rise from 90 percent in 1990-91 to 94.6 percent in 1997-98. The concessional debt accounted for 46 percent in 1990-91 and its share declined to about 39 percent in 1997-98. It means government will have to pay more interest which is a bad indication.

In dollar terms, India's external debt rose from US \$ 63.8 billion in 1990-91 to US \$ 93.6 billion in 1997-98 indicating a growth rate of 1.63 percent per annum. But figure of ex-

previous decade (1981-90). The data reveal that nearly 75 percent of Foreign Direct Investment (FDI) approvals were made in the priority sector like : power, fuels, chemicals, fertilizers etc. As against it, 25 percent of investment approvals were made in non-priority areas like food processing industries, service areas like food processing industries, service sector and trading etc.

After the announcement of industrial policy of 1991, majority share of foreign companies was permitted upto 51 percent for automatic approvals. But this limit was raised to 74 percent in January 1997 in case of foreign investors and 100 percent in case of Non-Resident Indians.

ternal debt in dollar terms really conceals the burden of debt, since the exchange rate between US dollar and Rupee had also deteriorated from Rs 17.91 in 1990-91 to Rs 37.17 in 1997-98. Consequently, in rupee terms, India's external debt rose from Rs 1,63,000 crores in 1991 to Rs 3,71,355 crores in 1997-98, indicating a growth rate of 1.63 percent per annum. Whereas India's external debt rose by 12 percent in dollar terms between 1990-91 and 1997-98, it rose by 128 percent in rupee terms during the same period. There is no doubt that India has been able to manage its external debt during the last five years.

GATT And WTO



### External Debt and Debt Services

	External Debt Rs (crore)	Debt US\$ million	Debt GDP Ratio (%)	Debt Services as% of current receipts
1980-81	19,470	23.50	13.1	9.3
1989-90	1,30,278	75.86	28.5	30.9
1990-91	1,63,001	83.80	30.4	35.3
1991-92	2,52,910	85.28	41.0	30.2
1992-93	2,80,746	90.02	39.8	28.6
1993-94	2,90,418	92.69	35.9	26.9
1994-95	3,11,685	99.01	32.7	27.5
1995-96	3,20,728	93.73	28.3	24.3
1996-97	3,35,827	93.47	26.2	21.2
1997-98	3,71,565	93.91	26.4	19.5

traditional concern of GATT relating to trade liberalisation, the Uruguay Round has also reached agreement on various new areas like Trade Related Investment Measures (TRIMS) and Trade in Services. Mr Arthur Dunkel, Director General of GATT, computed a very detailed document popularly known as Dunkel drafts and presented it before the member countries as a compromise document. The Dunkel draft culminated into the final act on December 15, 1993. India along with 117 nations signed the agreement on April 16, 1994.

According to the agreement, the tariffs are estimated to be reduced by 33 to 40 percent. India has promised to reduce the basic duty by 30 percent. This duty reduction is to be effected over a period of six years. Besides restricting anti dumping measures the agreement permits not only indirect tax rebates of drawback schemes to encourage exports but prohibits export subsidies. The GATT agreement does not intend to produce any disastrous effect on our exports by withdrawing export subsidies, as alleged by critics. Some critics are of the view that Trade Related Intellectual Property Rights (TRIPS) as embodied in the GATT agreement, more especially in two vital areas i.e., pharmaceuticals and agriculture; affect the well being of the people.

Trade Related Investment measures to abrogate the freedom to become selective in area of foreign investment. This militates our of self-reliance. Another measure achieved in the Round is phasing out of multi fabric Arrangement (MFA) which restricted international trade in textile and garments between industrialised countries and developing countries. Those proposals are very important for developing countries like India since textile exports constitute the single most important item of their export. The agreement provides for liberalisation in service sector. Most Favoured Nation (MFN) treatment will be adopted in services, and there would be transparency in the regulations relating to service sector. Most Favoured Nation (MFN) is a clause in commercial treaty by which each party agrees to extend concessions they give to any other country.

The most important decision of the agreement was to establish a World Trade Organisation (WTO) which would succeed GATT and monitor implementation of Uruguay Round Agreement. As a result of this WTO was created. The WTO has been successful in having 132 members which accounts for over 90 per cent of World Trade.

### Money Supply

In common parlance money signifies stock of money at a point which can be used for exchange of goods and services. However this is regarded as a narrow concept of money supply as it does not include that part of stock of money which is used as a store of value, for instance fixed deposits (time deposits).

According to latest classification there are four measures of money supply in India, which are as follows.

M1 = currency notes and coins with the public, demand deposits both commercial and co-operatives with banks and 'other deposits' with RBI.

M2 = M1 + saving deposits with post office

M3 = M1 + time deposits with commercial and co-operatives banks

$M_4 = M_3 +$  total deposits with post office organisation.

In the above definitions,  $M_1$  is called narrow money and  $M_3$  is called the broad money. Currency includes paper currency and coins only. The distinction between narrow money ( $M_1$ ) and broad money ( $M_3$ ) is the treatment of time deposits of the public with the banks on the ground that they are income earning assets and as such are not liquid. On the other hand, broad money includes time deposits of the public with the banks, not as cash but as part of their monetary resources of the public. In 1997-98, the currency supply with the people ( $M_1$ ) was only Rs. 1,70 crores but the total liquid resources with the people ( $M_4$ ) amounted to Rs. 84,686 crores.

### Indian currency system

The Reserve Bank of India (RBI) is the sole authority for the issue of currency in India, other than one rupee notes and coins and small coins which are issued by Government of India. The issue of notes by the RBI is kept separate from the rest of its banking operations. For this the RBI is organized under two separate departments, the Currency Department and the Banking Department. The former being solely responsible for the issue of notes. For internal purpose, there are coins for currency notes, for external purposes, the rupee is convertible to other currencies of the world. RBI keeps a minimum backing of Rs. 200 crore out of which there should be gold worth Rs. 100 crore and balance in rupee securities. The minimum system is known as the minimum reserve system of the note issue. The issue of currency, its circulation and its withdrawal from circulation, expansion and contraction of currency respectively take place through the Banking Department of RBI. Though the one rupee notes and coins and small coins are issued by the Central Government, their distribution to the public is the sole responsibility of the RBI. According to the provision the RBI can print and issue currency notes of different denominations from two rupee notes to

ten thousand rupee notes. The total Reserve Bank notes in circulation amounted to about Rs. 1,910 crore and Rs. 1,48,520 crores at the end of March 1998.

### Indian financial system

India's financial system includes a host of institutions and the mechanisms which affects the generation of savings by the community, the mobilisation of savings and the effective distribution of saving among all those who demand the funds for investment purposes. The Indian financial system performs a crucial role in economic development of India through saving investment process, also known as capital formation. The Indian financial system which refers to the borrowing and lending of funds or to the demand for and supply of funds, consists of two parts viz. ; the Indian money market (organised and unorganised sector) and the Indian Capital market.

The organised banking system in India can be divided into three categories viz., the central bank of the country known as the Reserve Bank of India, the commercial banks and co-operative banks. The RBI is the supreme monetary and banking authority in the country and has responsibility to control the banking system. It keeps the reserve of all commercial bank and hence is known as the "Reserve Bank".

Commercial banks mobilise savings in urban areas and make them available to large and small industrial and trading units mainly for working capital requirements. After 1969 commercial banks are broadly classified into nationalised or public sector banks and private sector banks. The State Bank of India and its associate banks along with another 20 banks are the public sector banks.

The Regional Rural Banks came in to existence since 1976 with the specific objective of providing credit and deposit facilities particularly to the small and marginal farmers, agricultural labourers, artisans and small entrepreneurs.

Primary co-operative credit (for banks) were originally set up in villages for mobilising and channelising the savings of the farmers for investment in rural areas.

## NATIONAL NETWORK

their credit needs for cultivation. To support them, central or district co-operative banks were established. The funds of the RBI meant for agricultural sector actually pass through the state co-operative bank and central co-operative banks.

The money market concerns in money instrument involving borrowing and lending for short periods. It is a part of securities markets. The money market instruments are inter-bank call money, short notice deposits, T-bills, commercial bills etc.

After independence the Indian banking system has recorded rapid growth. This was due to economic planning, increase in money supply, growth of banking sector, control and guidance by the RBI and above all, nationalisation of banks in July 1969. In 1950-51, there were 430 commercial banks but the number of banks declined rapidly due to RBI's policy of merger of small banks with big banks as a measure of strengthening the banking system. 14 major Indian scheduled commercial banks each having aggregate deposits of not less than Rs 50 crore were taken over by the Government of India in 1969. On April 15, 1980 six more commercial banks whose total deposits exceeded by Rs 200 crore each were nationalised. Thus the State Bank of India, 7 associate banks of SBI, 20 nationalised banks i.e. 28 commercial banks together constitute public sector commercial banks.

### Non Bank Financial Intermediaries

Non Bank Financial Intermediaries (NBFIs) is a heterogeneous group of financial institutions other than commercial and co-operative banks. They include wide variety of financial institutions, which raise funds from the public, directly or indirectly to lend them to ultimate spender. The development banks such as IDBI, IFCI, ICICI SFC, etc fall in this category. They specialise in making term loans to their borrowers. Three other all-India big term-lending institutions are the LIC, the GIC and its subsidiaries and the UTI. Of these only the UTI is a pure NBF, the others raise funds

only the UTI is a pure NBF the others raise funds as premia from the sale of insurance. NBFIs are not regarded as banking companies. Hence there is no minimum liquidity ratio or cash ratio, no specific ratio between liquidity ratio between their assets and funds and deposits. There are two types of NBFIs viz. : organized (specialised such as LIC, IDBI, development banks etc.) and unorganised (like companies, chit funds nidhi etc.)

### Industrial Finance Corporation of India (IFCI)

The Government of India set up industrial finance corporation of India in July 1948 under special Act. The IFCI was the first long term industrial financing institution to be set up in the country. It is now a 50 percent subsidiary of IDBI, the other 50 percent of its share capital is held by banks and insurance companies. It provides financial assistance to large and medium size limited companies in both the private and public sectors and to co-operative societies. Recently it started use of Internet in promotional activities of techno-economic surveys and setting up of technical consultancy organizations.

### The Industrial Development Bank of India (IDBI)

It is the apex institution in the field of industrial development banking in the country. Set up as a wholly owned subsidiary of the RBI in July 1964, it was made an autonomous institution in February 1976. The IFCI, and UTI are its subsidiaries. As a development bank, the IDBI provides term finance and other development services to industry alone with other development bank. It provides export credit in participation with commercial banks. As apex bank it provides refinancing to eligible banks and term financing institutions like the IFCI and SFCs against the term finance of these institutions to industry. All income earned by IDBI including interest income is tax-free. In the case of other developed banks, interest income is taxable.



largest part of refinance assistance has gone for the scheme of minor irrigation, farm mechanisation, storage and market yards, dairy development etc.

## Insurance Sector

The life insurance sector was nationalised in 1956 into Life Insurance Corporation (LIC); and the non-life sector was nationalised in 1972 as the General Insurance Corporation (GIC). A well developed insurance sector promotes economic growth by encouraging risk taking activity and has great potential as a mobilizer of long term contractual savings in the form of life insurance. To tap the vast potential of insurance sector or to mobilise long term savings, India needs reforms which include revitalizing and restructuring of public sector companies, and opening up of the sector to private players.

The Congress government of Narashimha Rao set up an Insurance Reforms Committee in April 1993. The committee submitted its report in January 1994. Recommended a phased programme of liberalization. The committee recommended setting up of Insurance Regulatory Authority (IRA). The IRA's role comprises the following three functions (i) protection of consumer's interest, (ii) to ensure financial soundness and solvency of the insurance industry; and (iii) to ensure healthy growth of the insurance market.

The LIC is a state monopoly whereas the central government owns the GIC. The GIC has four competing subsidiaries

## Life Insurance Corporation of India (LIC)

LIC promotes saving and results in the institutionalisation of mobilisation. Life Insurance is a very important form of long term contractual savings. Saving through life insurance policies tax-free. The LIC is a heavy investor of funds government securities. LIC is required to hold a bulk (87.5%) of its assets in the form of government securities, other approved securities, debentures of co-operative land development banks and loans to approved authorities. Only the remaining 12.5% can be made available directly to the private sector through investment in shares and debentures and loans. LIC is second largest shareholder in the securities market. It acts as a kind of downward stabiliser for the share market as the continuous inflow of fresh funds with it enables buy even when the market is weak.

## General Insurance Corporation of India (GIC)

The general insurance corporation (GIC) provides insurance against specified risks, such as loss from fire and accident to property of various kinds and against risky personal accidents and sickness.

The policies do not include any saving feature. The purchaser of general insurance simply buys a service and not any financial asset. They are not financial intermediaries in full sense. However they do accumulate pools of funds from premium and investment income for meeting claims under their policies. Thus they do manage

## Insurance Products

### Life Insurance Products

- (i) Basic Life Insurance Plan (whole life)
- (ii) Term Assurance Plans (two year), such as Bima Kiran, Bima Sandesh
- (iii) Plans for Children
- (iv) Pension Plans
- (v) Jeevan Sarita
- (vi) Special plans to meet special needs : Jeevan Griha, Jeevan Suraksha, Asha Deep etc.

### General Insurance Products

#### Tariff Products

- (i) Fire Insurance
- (ii) Motor Vehicles
- (iii) Marine Cargo and Hull
- (iv) Personal accident
- (v) Engineering insurance
- (vi) Workmen compensation
- (vii) Bankers Indemnity

#### Non-Tariff Products

- (i) Burglary and House break
- (ii) All risk (Jewellery and Valuables)
- (iii) Mediclaim
- (iv) Overseas Mediclaim
- (v) Bhavishya Arogya (old age mediclaim)

folios of assets like other financial institutions. LIC is required by law to invest at least 35% of its fresh accruals of investible funds in government and other approved securities, with a minimum of 25% in central government securities.

## Unit Trust of India (UTI)

UTI was set up in 1964. It is a 50% subsidiary of the IDBI and the rest 50% is subscribed by LIC, SBI, other scheduled banks, IFCI and IDCI. The UTI collects its funds mostly through the sale of units under its various unit schemes. At the end of June 1991 there were 22 such schemes, outstanding of these are the unit scheme of 34. Dividends payable to the unit holders can be automatically reinvested in units, if the holder desires. The UTI is free in the investment of its funds. It is not constrained statutorily like the LIC and banks to invest specified minimum proportions of their funds in government and other approved securities. In recent years, 21 other mutual funds (besides UTI) have also come up in the market, 11 of them are in the private sector and 10 are in the public sector. The latter have been set up mainly by the merchant banking subsidiaries of some public sector banks.

## Reserve Bank of India

The RBI was inaugurated in April 1935 with a share of capital of Rs. 5 crore. It was nationalised in 1949. The RBI is the central arch of the Indian money market. It issues notes, buys and sell Government securities, regulates the volume, direction and cost of credit, manages foreign exchange and supports institutions financing agriculture and industry. RBI plays a leading role in organising, supervising, regulating and developing the monetary and financial system. The design and conduct of the monetary policy are its special responsibility. The executive head of the Bank is called Governor who is assisted by deputy governors and other officers. It has a central board of directors, supplemented by four local boards at Delhi, Calcutta, Madras and Mumbai for four regional areas : northern, eastern, southern and

western respectively, Head office of RBI is situated at Mumbai.

**Function and working :** The RBI has the sole right to issue notes. This covers currency notes of every denomination and other than one rupee coins and notes and subsidiary coins which are issued by the Ministry of Finance.

The RBI acts as the banker of the central Government and also as the bank to the central and state governments. Besides undertaking current financial transactions and management of public debt, the RBI plays an important part in financing government expenditure. The Bank, in addition to financial transactions, act as the agent of the government in respect of India's membership of the International Monetary Fund (IMF) and the International Bank of Reconstruction (otherwise known as World Bank).

The RBI acts as a banker to other banks. Banks are required to maintain a certain percentage of their deposits with the RBI. The Reserve Bank provides finance to schedule banks.

The RBI functions as the controller of credit. The method of 'selective control' has been applied to allocate credit on certain lines as also fixing the amount of credit. It holds most of the nation's foreign exchange reserves. The RBI has helped in building up a financial infrastructure for economic growth. The Reserve Bank undertakes collection and dissemination of information and conducts research in these fields.

**RBI's Monetary Policy :** The credit and monetary policy for 1999-2000 was launched by Bimal Jalan, the governor of the Reserve Bank of India on April 20. The main purpose of this policy was to ensure the funds available for productive use at all times. The policy paints a brighter picture of 6-7% GDP growth for 1999-2000 as against CSO's provisional estimates for 1998-99 at 5.8%. The current year's optimistic projection is based on the assumption of a normal monsoon and industrial recovery. Jalan has set a lower M3 growth target of 15.5-16% than the 17.8% achieved in 1998-99. Though lending rates are at an all time low, credit refuses to pick up because of the

slowdown. RBI's grip on the rupee is being tested by political flux. Jalan has been under pressure to cut rates and devalue the rupee. A huge Govt. borrowing programme is posing serious threat to macro economic stability. The only redeeming feature seems to be the low rate of inflation. The RBI has committed to keep rates stable in the medium to long term. Banks have been allowed to quote different prime lending rates for different maturities. They have been given more freedom to act quickly or make rate changes. The cash reserve ratio (CRR) has been cut down to 10% by releasing Rs. 3,250 crore into the system. Fixed term loans have been allowed. The RBI has tried to keep liquidity easy in order to foster growth. Infrastructure funding procedure have been eased. Banks have been given sops to invest in venture capital which will be for priority sector. RBI is reducing its role granted to foreign institutional investors to hedge a larger portion of equity investments.

## Foreign Exchange Management Act (FEMA)

Government of India enacted the foreign

exchange Regulation act. 1947 to regulate the operation foreign controlled companies in India. The act was amended comprehensively in 1973 and the New Foreign Exchange Regulation came into force from January 1974. The major objectives of FERA, 1973 were conservation of India's precious foreign exchange resources and the issue of guidelines to the foreign investors to divert the funds to the core sector which employ sophisticated foreign technology.

Foreign Exchange Management Act (FEMA) seeks to repeal FERA 1973 because the condition under which FERA 1973 was enacted and implemented do not exist by more. For instance India has now forex reserves of \$32 billion as compared to less than \$1 billion when FERA 1973 was enacted. The main aim of FEMA is to consolidate and simplify the law relating to foreign exchange with the objective of facilitating external trade and payment and promoting the orderly development and maintenance of foreign exchange market in India.

According to FEMA no person shall deal in or transfer any foreign exchange or foreign security to any person not being an authorised person

### Selected Indicators of Indian Economy

	1980-81	1990-91	1996-97
1. GDP at factor cost (Rs. Crores) of 1980-81 prices	1,22,427	2,12,253	2,96,845
2. Per capita NNP Rs at (1980-81 prices)	1,630	2,222	2,761
3. Gross domestic capital formation (as% of GDP)	22.7	27.0	25.7*
4. Gross domestic saving (as% of GDP)	21.2	24.3	24.4*
5. Foodgrain (million tonnes)	129.6	176.4	199.4
6. Electricity generated (utilities only) (billion KWH)	116.8	264.3	394.5
7. Wholesale price index (Base 1981-82)	91.1	182.7	314.5
8. Centre's Budgetary Deficit (Rs crores)	2,576	11,347	13,184
9. Export (Rs. crores)	6,711	32,553	1,18,919
10. Imports (Rs. crore)	12,549	43,198	1,38,919
11. Population (millions)	682.2	846.3	948.0
12. Birth rate (per 1000)	33.9	29.5	27.2
13. Death rate (per 1000)	12.5	9.8	9.0
14. Life expectancy at birth (in years)	54.4	58.7	60.4
15. Literacy rate (percent)	43.6	52.2	.....
16. (a) Male	56.4	64.1	.....
(b) Female	29.0	39.3	.....

\*Provisional





October 1991 the RBI Index of ordinary share prices had crossed 644 and touched 1,000 in the beginning of February 1992. The sensex which was 2000 in February 1992 touched 3,550 on 9th March, 1992 and crossed 4,300 on April 20, 1992 under the impact of bulls like Harshad Mehta. The RBI index of ordinary share prices shut up to 1,000 in February 1992, 1400 in March 1992 and rose to 2,000 in April 1992.

In 1997 Bombay Stock Exchange (BSE) sensitive index (Sensdex) was once again booming and even better. On Sep. 12, 1994 sensdex climbed to 4641.34 on July 14, 1999 The sensdex finally crossed that altitude to close at 4710.25, the new peak in its 125 year history. In October the stock market got further boost by crossing the mark of 5000. The foreign institutional investors are highly bullish on the stock. The rise in the sensdex appears to be the case of a lot of pent up

demand. Since May 1999, the sensdex had been on upswing. The recovery of commodity price picking up. The sharp cut in deposits rates in 1999 from 12 to 10.5 percent is another reason for the underlying firmness of share prices.

## Inflation in India

Inflation is a sustained and appreciable rise in prices over a long period of time. Inflation is generally speaking is of two types viz., (a) demand pull inflation and (b) cost push inflation.

Demand-pull inflation is a state of rise in prices brought about by increase in aggregate demand in the face of short supply.

Cost-push inflation is a situation of general rise in prices in which marginal costs (paid by factor owners) are higher than the marginal productivity of capital.

Inflation in India has been both a demand pull and cost push type. On the demand side important factors have been (i) increase in money supply (ii) increase in government expenditure (iii) increase in flow of foreign exchange. On the cost side, the important factors have been (i) increase in administered price from time to time (ii) dislocation of infrastructural facilities (iii) faulty management etc.

Inflation can be controlled by monetary policy, fiscal policy, trade policy. Although it may not be possible to put some controls on inflation, it may neither be feasible nor desirable to bring inflation totally under control.

According to the Government of India, the rising up of inflationary pressure during the 1970s was mainly attributed to (a) higher fiscal deficit (b) sharp rise in reserve money (c) supply-demand imbalances (d) a sharp increase in procurement price of cereals and consequent rise in issue price.

In contrast to 1998, in 1999 the rise of wholesale price index (WPI) reached a historical low of 1.19 percent on July 24, 1994. While monetary growth remained close to its long rate of about 10 percent, preliminary evidence in the Indian context shows that the full impact of a monetary shift

## List of Important Committees

Name of Committee	Subject
1. Ghosh Committee	Bank Frauds
2. Omkar Goswami Committee	Industrial sickness and corporate Restructuring
3. Janakiraman Committee	To enquire into the securities transactions of the banks and financial institutions
4. Jilani Committee	Loan system
5. Goipona Committee	Customer service
6. Mathura Committee	Insurance Sector Reforms
7. Dr. Mehta Committee	Integrated Rural Development programme
8. Narasimham Committee	Financial Sector Reforms
9. Nayak Committee	Credit to SSS Sector
10. Rengarajan Committee	Public sector disinvestment
11. Raj Committee	Agricultural holding tax
12. Khuro Committee	Agricultural credit
13. Ram Nivas Mirdha Committee	To enquire into the securities scam.
14. Bhagwati Committee	Public welfare
15. Raja Chelliah Committee	Tax reforms

on the inflation rate can take a long time to realise and the lag could even exceed two years.

## Poverty

Poverty is a socio-economic phenomenon which defies any precise definition. Its concept and definition varies from country to country. A segment of the society unable to meet the basic needs of life could be termed suffering from poverty. Poverty is a multidimensional problem.

Poverty can be grouped as absolute poverty and relative poverty. Absolute poverty means that a person's income or consumption expenditures are so meagre that they couldn't meet his/her minimum subsistence level. The population, whose level of income or expenditure is below the figure, is considered to be below the poverty line.

Relative poverty indicates the large inequalities of income. The people with lower incomes are relatively poor compared to people with higher incomes. It is absolute poverty with which we are concerned when we talk of the problem of poverty in India.

**Planning Commission Report (1993) on poverty :** Planning commission constituted in September 1989 an Expert Group to consider methodological and computational aspects of estimation of proportion and number of poor in India. Prof. D. T. Lakdawala, chairman of the Expert Group submitted his report in July 1993.

Expert Group estimates reveal that rural poverty ratio has declined from 5.64 percent in 1973-74 to 39.1 percent in 1987-88. As compared with this, there is a relatively smaller decline in the urban poverty ratio, which has come down from 9.2 percent in 1973-74 to 40.1 percent in 1987-88. The overall poverty ratio has therefore, declined from 54.9 percent in 1973-74 to 39.3 percent in 1987-88. This implies that during the 14 year period an annual average decline of about 1.2 percent. An important revelation of the study is that for the first time, the urban poverty ratio has been estimated to be higher than rural poverty ratio. In absolute terms, the number of urban poor has risen from 60.3 million in 1973-74 to

83.3 million in 1987-88 an increase of 20 million. The population of the rural poor which was 261 million in 1973-74 declined to 229 million in 1987-88.

**Poverty Line :** The nature of Indian poverty differs from rural sector to urban sector. To measure the poverty line, the govt. of India adopted calorie intake criteria. For rural areas minimum calorie intake is 2400 calories and for urban areas it is 2100 calories.

**Paradigm Shift :** After independence the Govt. of India promises a lot of policy initiatives to check and curb poverty. Nehru govt. promises to curb it but in practice his govt. followed conservative economic policies. In the 1970's Indira Gandhi's 'garibi hatao' and Rajiv Gandhi's massive poverty alleviation programmes are fruitless efforts to weed out poverty. In 1990s economic reforms failed vibrantly to give the poor a shift. Now the situation is that absolute poverty is co-existing with a high-tech nuclear India.

The main causes of Indian poverty are population explosion, negligible trickle-down effect, improper and mismanagement of poverty eradication programmes.

**Sen's Poverty Index :** Amartya Sen's poverty index :  $P = H[1 - (1 - I) - G]$

A common measure of poverty in a society is the share of the population (H) with income below poverty line. Here P = poverty, H = population below poverty line, G- gini coefficient, and I is a measure between Zero (0) and 1 of the distribution of income.

**Vicious Circle :** Vicious circles are a set of interlocking and inter-depending circumstances that influence each other. A vicious circle implies a circular act or react of forces upon one another in such a complicated way that a poor country

### Projection of National Poverty Ratios

Region	1996-97	2001-02	2006-7	2011-12
Rural	30.55	18.61	9.64	4.31
Urban	25.58	16.46	9.28	4.49
Total	29.18	17.98	9.53	4.37

force to remain in a 'state of poverty'. The most favourable way to break vicious circle is to break it at the point of capital deficiency.

Poverty alleviation programmes of the govt. of India can be broadly divided into two segments, such as (i) Rural Poverty Alleviation Programmes and (ii) Urban Poverty Alleviation Programmes (UPAP). Rural poverty alleviation programmes include TRYSEM, DWCRA, SITRA, GKY, Employment Assurance Schemes in block levels, etc. In the Ninth Plan government has announced a new programme, Swarna Jayanti Shahari Rozgar Yojana (SJSRY) under UPAD.

**Poverty projections in the Ninth plan :** The Ninth Plan states that the annual average rate of decline of poverty ratio during the period 1973-74 to 1993-94 has been 2.05 percent in both rural and urban areas, and 2.09 percent of the country as a whole. Ninth plan worked out the poverty estimate for 1996-97 on the basis of the growth rate experienced between 1993-94 and 1996-97 and has estimated that as a result of high growth rate during this period, incidence of poverty has been reduced in 1996-97 to 30.55 percent for the rural areas, 25.58 percent for the urban areas and 29.18 percent for the country as a whole. A World Bank study of the working of anti poverty programmes in India has shown that poverty alleviation programmes suffer from deficiencies in administration and implementation. The World Bank study confirmed that among the three key poverty programmes, the Integrated Rural Development Programme (IRDP), Public Distinguish System and the Public work scheme, the PDS has been the worst performer.

A review of the Ninth plan projections indicates that they are too optimistic and hope to practically eliminate poverty by the year 2012 A.D. Government has taken some decisions to remove poverty like giving employment, land, subsidised food etc.

## Unemployment in India

Unemployment is a situation characterised

## Growth of employment in organised and unorganised sectors

Period	Annual organised sector	Growth rate unorganised sector
1973-77	2.48	2.84
1977-78	2.42	2.20
1983-87	1.36	1.55
1973-87	2.11	2.20

by the existence of able persons who are willing to work but have to remain without a job. Neither of the two main strands of the received theory on employment are applicable to Indian case. First is the Keynesian framework. This type of unemployment, as Keney says, results from lack of effective demand. This theory is not valid for an underdeveloped economy like India. The second is the Neo classical approach, which relies on the flexibility of wage rate & wage level as a mechanism for clearing the labour market. It assumes availability of choice among production techniques to permit capital & labour substitution over a wide range without loss of efficiency. But in Indian case employment generation on the basis of lowering the already miserably low wages, even if possible was not acceptable. Unemployment in a developing economy may take any of the following forms.

1. Open employment is the result of lack of complementary resources, especially capital.
2. Underemployment or seasonal unemployment
3. Disguised unemployment a situation in which more persons are engaged in a job than are optimally required, So that the marginal productivity of labour is zero if not negative.

On the basis of the data collected by the National sample survey, it is revealed for the 15 year period (1972-73 to 1981-88), employment is estimated to have grown at the rate of 2.21 percent per annum, Rural employment has grown at the rate of 1.75 percent per annum while urban employment has grown at a relatively much faster growth rate around 4% per annum. However, male and female employment. Has grown more or less at the same pace of around 2.2 percent per

annum and thus their relative shares in total employment have remained more or less stationary at a ratio of 2:1 over the period. A study of trend in the growth rates of employment between organised and unorganised sectors reveal that both the sectors experienced a declining growth in employment.

Despite a slow and declining rate of employment growth the aggregate employment of the educated has been relatively high particularly among women. Educated employment growth rate was 7.5 percent per annum for the last decade (1977-78 to 1987-88). According to an estimate nearly three fourth of the unemployed belong to household with an income level less than Rs. 200 per month. All such families can be broadly classified as living below the poverty line.

Rising magnitude of unemployment led to high incidence of poverty. It was just by late 1970's it was realized that growth alone can not solve these problems and special programmes need to be introduced. A number of special employment programmes for self and wage employment are being implemented in rural and urban areas. Solving the problem of growing unemployment in the urban areas a scheme called self employment for educated unemployed was launched in 1983-84. The scheme aims at encouraging the educated youth to undertake self-employment in industry, business and service sector. Yet another scheme, called self employment programme for the urban poor was started by the Government in 1986. During 1993-94, two new programmes were launched which are (i) Employment Assurance scheme (EAS) and (ii) prime minister's Rozgar Yojana (PMRY) for educated unemployed youth. The EAS is being implemented in 1752 backward blocks in which Revamped Public Distribution system is in operation. It aims at providing 100 days of unskilled manual work to rural poor seeking employment. The PMRY scheme for educated unemployment youth has been designed to provide employment to more than one million persons by setting up seven lakhs micro enterprise during the Eighth plan period in industry, service and

### Projection of unemployment for 1990-2000

	Million
1. Backlog of unemployed in the beginning of 1990	28
2. New entrants to the labour force during 1990-95	37
3. Total unemployed for the 8th plan (1+2)	65
4. New entrants to the labour force during (1995-2000)	41
5. Total unemployed for the 9th plan	106

business. The scheme for self-employment for educated unemployed youth will be integrated with PMRY. Another scheme viz., Prime Minister's Urban Poverty Eradication Programme (PMIUEP) was launched during 1995-96, which apart from other things, is aimed at employment generation and skill upgradation. The Integrated Rural Development Programme (IRDP, 6th plain) seeks to promote self-employment by providing productive asset and inputs to the rural poor through a mix of subsidy and bank credit. Training for rural youth for self-employment (TRYSEM) and development of women and children in rural areas (DWCRA 82-87) are two special scheme of the IRDP. TRYSEM provides training and skill development opportunities to poor rural youth to enable them to take up self employment or wage employment and DWCRA seeks to promote economic activities among poorest of poor rural women. Jawahar Rozgar Yojana (JRY), started during 1989-86 is designed to generate additional short term gainful employment for the rural unemployed and underemployed on works which create productive economic assets in rural areas. The Nehru Rozgar Yojana (NRY) was launched in Oct. 1989 for the benefit of the urban poor.

**Employment policy in the Ninth Plan :**  
Despite an expected reduction in the growth rate of population to 1.58 percent per annum by the end of the Ninth plan, the labour force growth reached a peak level of 2.51 percent per annum

during the Ninth Plan period-highest it has ever been. The population is expected to touch 1.029 million by the Ninth Plan, indicating an increase of 78 million during the plan. The projections of population and labour force reveal the following results.

Year	Population	Labour force (in %)
1997-2002	1.58%	2.51%
2002-2007	1.58%	2.47%
2007-2012	1.46%	2.07%

Job opportunities will need to be created for 53 million persons during 1997-2002 as a consequence of labour force increase. 58 million jobs would be created during 2002-07 and thereafter, 55 million during 2007-12

In the ninth plan, Employment Assurance Scheme (EAS) is designed to provide 100 days of work at minimum wages on demand. The budget 1999-2000 followed a four pronged strategy with a common theme of ensuring greater involvement of Panchayat Raj Institutions (PRIs). The four strategies are

- The modified scheme of Jawahar Rozgar Yojana (JRY) will be called 'Gram Samridhi Yojana with the disposal of funds at the hand of Gram Panchayats.
- The EAS will be implemented at district or block levels with the selection of works being decided by the Zila Panshads.
- The Gram Panchayat will maintain a live employment register available to the Gram Sabha and public for scrutiny
- All the self-employment programmes for the rural poor will be merged into a single programme called 'Swarn Jayanti Gram Swarozgar Yojana', which will have greater participation of the Gram Panchayats

**Task force on Employment Generation :**  
A Task Force on Employment opportunities has been set up by the Planning Commission under the chairmanship of Dr. Monlek Singh Ahluwalia, member Planning Commission. The objective is to examine the existing employment situation in India and suggest strategies of employment

generation to provide jobs to 10 crore people over the next 10 years. Several academicians and bureaucrats are the member of this task force.

## Economic Glossary

**Administered prices :** Prices which are set consciously by a single decision making body rather than being determined by the free play of market forces.

**Asian Development Bank:** It was founded in 1966, for further development and investment in Asia and to help, prepare and co-ordinate development and provide technical aid. The bank is having its headquarters in the Philippines.

**Balanced Budget :** A budget is said to be a balanced budget when current income is same as current expenditure.

**Balanced Growth :** In growth theory it refers to a dynamic condition of an economy where all real variables have been growing at the same constant proportional rate (Which have been zero or negative)

**Balance of Trade :** Refers to the relationship between the values of countries imports and its export, i.e. the visible balance. These items are only forming part of the balance of payment which are (a) invisible items and (b) movement of capital.

**Black Economy :** That part of a country's economic activity which is not recorded in the national income accounts, although it does involve in the production of goods and services.

**Black Market :** A situation in which there is illegal selling of goods at prices above a legal maximum limit set by the government.

**Bond :** A legal agreement to pay a certain sum of money (Called principal) at some future date and carrying a fixed rate of interest; issued by corporations, centre, state and local governments as a means of financing long term investments

**Budget :** An estimate of expected revenues and expenditure for a given period, usually year, item by item.

**Budget Deficit** : When the expenditure of the Govt. exceeds the revenue, the balance between the two is the budget deficit.

**Call Money** : Is a loan that is made for a very short period of a few days only or for a week. It carries a low rate of interest. In case of stock exchange market, the duration of the call money may be for a fortnight.

**Capital intensive technique** : A mode of production where the use of capital is much more prevalent than the labour. It is a technique of production characterised by a very low capital output ratio.

**Capitalism** : It is an economic system where means of production and distribution are primarily owned by the private enterprises

**Capital/Output ratio** : A ratio that shows the units of capital required to produce a unit of output over a given period of time.

**Cash Reserve Ratio** : Refers to the ratio which banks have to maintain with the RBI as certain percentage between their holdings of cash and their time liabilities.

**Classical Economists** : A body of economic thought that prevailed in age of industrial revolution from the late 18th century to the last quarter of the 19th century. Its chief exponents were Adam Smith, John Baptiste, Thomas Robert Malthus, David Ricardo and John Stuart Mill. They believed in *Laissez faire*, balanced budget, and gave sole emphasis to production and growth. They were by the large, unaware of the concept of welfare.

**Commercial Banks** : Financial institutions that create credit accept deposit and give loans and perform other financial functions. They create credit by creating deposits on the basis of their cash reserve ratio. The ratio of cash reserves to total deposits is prescribed by law.

**Concessional loan** : Credit extended in terms that are more favourable to the borrower than are available on the money market.

**Crowding out** : Refers to a fall in either private consumption or investment because of a rise in government expenditure.

**Deflation** : Decline in the general price level of goods and services leading to rise in the value (purchasing power) A method of statistical conversion of a series of data to compensate for the general rise in prices.

**Depreciation** : Reduction in the value of a fixed asset due to wear and tear.

**Depression** : A phase of the business cycle in which economic activity is at a low ebb and there is mass scale unemployment/underemployment of resources. Prices, profits, consumption and rate of capital investment are also at a low level.

**Devaluation** : Official reduction in the foreign value of domestic currency. It is done to encourage the country's export and discourage imports.

**Direct Tax** : Tax that cannot be shifted. The burden of direct tax is borne by the person on whom it is initially fixed. Examples : Personal income tax, social security tax paid by employees.

**Disinvestment** : Reduction in the total stock of capital goods on account of failure to provide for depreciation.

**Dividend** : Earning of stock paid to share holders.

**Dumping** : Sale of a commodity at different prices in different markets, lower price being charged in a market where demand is relatively elastic.

**Economic Rent** : Payment received by the owner of a factor of production in excess of the minimum supply price or the transfer earning of the factor.

**Elasticity** : The degree of responsiveness of quantity demanded or supplied to a change in its price.

**Exchange Rate** : The rate at which central banks will exchange one country's currency for another i.e. the official rate.

**Excise Tax** : Tax imposed on the manufacture, sale or the consumption of various commodities, such as taxes on textiles, cloth, liquor etc.

**Fiscal policy** : Government's expenditure and tax policy; an important means of moderating

## NATIONAL NETWORK

the upswings and downswings of the business cycle.

**Foreign Exchange :** Claims on a country by another held in the form of currency of that country. Foreign exchange system enables one currency to be exchanged for another, thus facilitating trade between countries.

**Foreign Exchange Rate :** Prices of the domestic currency in terms of foreign currencies.

**Free Trade :** Trade in which goods can be imported and exported without any barriers in the form of tariffs, physical quotas, or any kind of restriction.

**Gross Domestic Product [GDP] :** A measure of the total flow of goods and services produced by the economy over a specific time period, normally a year. It is obtained by valuing output of goods and services at market prices and then aggregating.

**Indirect taxes :** Taxes levied on goods purchased by the consumer (and exported by the producer) for which the tax payer's liabilities varies in proportion to the quantity of particular goods purchased or sold

**Inflation :** A sustained and appreciable increase in the price level over a considerable period of time

**Keynesian Model :** Model developed by Lord John Maynard Keynes in the early 1930s to explain the cause of economic depression and the unemployment of the period. The model states that unemployment is caused by insufficient aggregate demand and it can be eliminated by the government expenditure that would raise aggregate demand by activating idle and/or underutilized resources.

**Laissez faire :** The principle of non-intervention of government in economic affairs.

**Mixed Economy :** The economy in which a unique blend of public sector and private sector co-exist. Indian example of mixed economy shows a perfect example.

**National Income (at factor cost) :** Total of all incomes earned or imputed to factors of productions, used in economic literature to represent

the output or income of an economy in a simple fashion.

**Per capita Income :** Total GNP of a country divided by the total population. Per capita income is often used as an economic indicator of the levels of living and development. It however can be a biased index because it takes no account of income distribution.

**Profits :** It is defined as the factor income of entrepreneurs. It can also be construed as residue left after meeting all the cost of production such as labour, capital, rent etc.

**Public Good :** A commodity or service which if supplied to one person can be made available to others at no extra cost.

**Real Income :** The income that a household or firm receives in terms of the real goods and services it can purchase. Alternatively it is money income adjusted by some price index.

**Statutory Liquidity Ratio :** The SLR ratio of cash in hand, exclusive of cash balances maintained by banks to meet required CRR, no excess reserves.

**Tariff (ad valorem) :** A fixed percentage tax on the value of an imported commodity at the point of entry into the importing country.

**Value Added Tax (VAT) :** This form of tax has been in operation in some countries as a value added tax, a tax levied on the value added to goods and services turned out by producers at stages of production and distribution.

**Welfare Economics :** Part of the economic theory, which deals with the maximization of social welfare.

**Zero Based Budgeting :** The technique of justifying the utility in cost benefit terms of government expenditure on projects. The technique involves a critical review of each scheme before a budgetary provision is made in its favour. This form of financial planning has an objective to ensure that every rupee is result oriented. It ZBB is properly implemented, it could help to reverse the trend of increasing revenue account of the union government.

# INDIAN GEOGRAPHY

## Climate

The climate of India is basically tropical monsoon type. The word monsoon (Arabic: mausam) stands for seasonal reversal in the wind pattern and accounts for and is associated with the rhythm of season, changes in the direction of winds, distribution pattern of rainfall and temperature with the change of seasons. However, the regional variations in climate can't be ignored. These variations are expressed in terms of winds, rainfall, temperature and humidity. Main factors deciding the local climate are location, altitude, and distance from general relief.

But these diversities are only regional factors or sub-types of an overall monsoon climate. The monsoon regime, thus, emphasises the basic unity of Indian sub-continent and link India with the whole of South Asia in this context.

## Mechanism of Indian Weather

India has wide regional variations in terms of winds, rainfall, temperature, humidity etc. These differences in local climate are produced by the following factors:

- Surface distribution of pressure and winds;
- Upper air circulation caused by factors controlling global weather and the inflow of different air masses and jet streams; and
- 1. Inflow of western disturbances and tropical depressions into India creating weather phenomena leading to rainfall.

## Seasons

On the basis of monsoonal variation, there are four seasons in India.

### The Cold Weather Season (December to February)

Mainly felt in North India - an important event of the season is the inflow of the depression from

the west to the north west. These low pressure system called Western disturbances, originate in West Asia and travel towards India, cause some rain and snowfall in winter months in north and north-eastern India - generally 4 or 5 depressions in a month from December to February.

### The Hot Weather Season (March to May)

Because of the heating of the subcontinent, the equatorial trough moves northward and lies at 25°N in July. This trough attracts surface winds from South - Westerly direction along the West Coast and from north, north - Westerly direction along the Bengal Coast. The northward shift of equatorial trough and the excessive heating of the Himalayan and the central Asian highlands are responsible for generating the monsoon, the inflow of monsoon in mid - June changes the season to the rainy one.

### The South-West Monsoon Season (June to September)

The 'monsoon burst' brings about the sudden onset of rain on different dates in different parts of India. The Arabian Sea current covers West Coast, Maharashtra, Gujarat and parts of Madhya Pradesh, whereas the Bay of Bengal current strikes the Bengal coast and the Shillong plateau and moves West and north - west, parallel to the Himalayas and brings rain to Bihar, U.P., Delhi etc. The two currents merge over Punjab. The tropical depressions which periodically occur cause dry spells during the monsoon season. So these depressions determine the amount of rainfall. The East Coast of India remains dry during this season of June - September, since it is in the rain shadow area of the western current and is parallel to the Bengal current.



**The North-East Monsoon (October to December)**

The retreat of South-West monsoon from North India starts in September and is gradual. During this season, severe cyclonic storms develop in the Bay of Bengal which move in a South - easterly to North - Westerly direction. They give substantial amount of rainfall to the East coast and sometimes cause havoc in Andhra Pradesh, Tamil Nadu and West Bengal. In Tamil Nadu and surrounding areas, it is known as the north east monsoon period.

**Climatic Regions of India**

The climatic division of India is based upon Trewartha's scheme, which is a modified form of Koppen's system and it corresponds with the vegetative, agricultural and geographical regions of India. Main climatic regions of India include:

**Tropical Rain Forest (Am)**

It is found on the West coastal plain, the Western Ghats and some parts of Assam. It is characterized by high temperature in Winter not below 18 °C, and in Summer about 29 °C. The average rainfall exceeds 200 cm.

**Tropical Savanna (Aw)**

It is located in Peninsular region except the semi - arid zone in the leeward side of the Sahyadris. It is characterized by long dry weather throughout winter and early summer and high temperature (above 18 °C). Annual rainfall varies from 76 cm in the west to 150 cm in the east.

**Tropical Semi-arid Steppe (BS)**

Prevails in the rain-shadow belt running Southward from Central Maharashtra to Tamil Nadu in the leeward side of the Sahyadris and Cardamom Hills. It is characterized by low rainfall which varies from 38 cm to 80 cm, high temperature between 20° - 30° C.

**Tropical and Sub-Tropical Steppe (BSh)**

Occurs over Punjab extending to Kutch region. The Thar desert is in the west and the more

humid climate of the Ganga plain and the Peninsula to its East and South respectively. Characterized by the annual rainfall of 30.5 cm to 63.5 cm, temperature from 12° C (January) to 35° C (June).

**Tropical Desert (BWh)**

The area includes the western parts of Barmer, Jaisalmer and Bikaner district of Rajasthan. A large portion of Kutch Peninsula along with Thar desert is also included. It is characterized by scanty rainfall (30 cm. average) with few parts receiving 12 cm annual rainfall. Temperature is above 35° C.

**Humid Sub - tropical with Dry Winter (Cwa)**

The area includes South of the Himalayas, East of the tropical and sub - tropical steppe and north of tropical Savanna. It is characterized by rainfall of 63.5 cm to 254 cm, most of it is received during the South West Monsoon season.

**Mountain Climate (H)**

The area lies above 6000 metre sea-level. Examples are the Himalayan and Karakoram ranges. Temperature decreases with altitude. The Trans-Himalayan region particularly Ladakh has a dry and cold climate - what may be called cold desert. Drought is permanent.

**Variability in the Rainfall**

The average annual rainfall in India is 100cm. However, this rainfall is neither uniformly distributed throughout the country nor certain to occur every year. The unpredictable nature of the annual rain poses a major problem for India. But, there are certain regions of heavy rainfall in India which are almost certain to get the annual rainfall of more than 200 cm every year. These are Assam and its neighbourhood, the western Ghats and the adjoining coastal areas and foothills of the Himalayas. In contrast, certain areas, particularly western Rajasthan, Kutch, Ladakh Plateau are perpetually drought - prone, the average annual precipitation being about 100 cm.

## Classification of Soils

Before classifying various types of soil, it is better to have a brief account of the factors that affect the soil formation. These factors are:

### Parent material

The parent material, of which the soils are formed, is derived from the weathering of the rocks exposed on surface. For example the soil derived from lava and rocks is generally black in colour.

### Relief features

They influence the process of soil formation through various ways. The variation in relief features like slope, underground water etc. affect the colour, composition and properties of soil.

### Climate

Climate is the most important single factor in soil formation. It affects the conditions of soil formation through the amount and seasonal distribution of temperature and rainfall. It also affects soil formation indirectly by affecting other genetic factors like parent material, relief features, natural vegetation etc.

### Natural Vegetation

The decayed leaf material adds to the fertility of soil by providing to it the much needed content of humus. That is why, the densely forested areas contain some of the best soils.

### Types of soils

The Indian Council of Agricultural Research (ICAR) has divided the Soils of India into 8 major groups.

### Alluvial Soils including the coastal and deltaic alluvium

Agriculturally the most important soils. It covers 24% of the country's total area. Mainly found in Central plains extending from Punjab to Assam, Eastern and Western Coastal plains and deltaic region.

Alluvial soil is transported or inter - zonal soil. It is divided into Khadar (newer) and Bhabar (older). This soil is, however, deficient in nitrogen

### Metamorphic rocks: metamorphised from basic rocks

<b>1. Igneous Rocks</b>	
Slate	Schist
Granite	Gneiss
Bituminous coal	Anthracite
Graphite	
<b>2. Sedimentary Rocks</b>	
Limestone	Marble
Sand stone	Quartzite
Shale	Slate
Peat	Coal

and humus content; unsuitable for water retentive plantation e.g. cotton. Suitable for the cultivation of rice, wheat, sugar cane and vegetables.

### Black cotton Soils

This is also called regur soil. Main areas include Deccan Trap, Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh, Tamil Nadu, U.P. and Rajasthan.

Black Soils are usually deficient in nitrogen, phosphate and humus but rich in Potash, lime, aluminum, calcium and magnesium. The soil is moisture retentive and it has a high degree of fertility. Suitable for the cultivation of cotton, cereals, oilseeds, tobacco, groundnut and citrus fruits

### Red Soils

Occupies about 70% of the total area in Tamil Nadu, Chotanagpur, few parts of Andhra Pradesh and Orissa. They comprise of red loams and due to oxidation of ferro - magnesium these soils have developed in Peninsular India.

Red soils have a concentration of iron, absence of lime, Kankar, carbonates, humus, phosphoric acid and neutral to acid reactions. Favorable for the cultivation of pulses and coarse grains.

### Laterite Soils

Laterite soils are formed under the conditions of high rainfall and temperature with alternate wet and dry periods. These soils are rich in oxides of iron and aluminum but poor in nitrogen, potash, phosphoric acid and lime content due to

leaching, highly acidic in nature. These soils are concentrated in Vindhyan Plateau, Satpura, Mahadeo and Maikal ranges in Madhya Pradesh, Malabar coast, Orissa coast and Meghalaya.

### Forest Soils

Humus predominates in forest soil but it is deficient in potash, phosphorous and lime. It is distributed over the Himalayan and other ranges in the north, Western Ghats, Eastern Ghats and Peninsula. Favourable for plantation crops e.g. tea, coffee spices and tropical fruits.

### Arid and Desert Soils

These soils, characterised by high salt and low humus content, are found in Rajasthan, Haryana, Punjab, Rann of Kutch, and other rain-shadow regions. Since these soils consist of high phosphate, fertility increases with irrigation and by adding of the nutrients

### Saline and Alkali Soils

They develop along arid region in small patches. Also called *reh*, *hallar* and *Usar*, they are infertile but can be reclaimed by good drainage. These soils are found in Rajasthan, Punjab, Haryana, U.P. and Bihar.

### Saline and organic soils

Develop under result of accumulation of large quantity of organic matter. Highly saline and deficient in phosphate and potash and occur in central Orissa, Central Bihar, West Bengal and Tamil Nadu.

### Soil Erosion

The destruction of soil cover is known as soil erosion. The main reasons of soil erosion are deforestation, over-grazing, irrational cultivation (e.g., Jhoom cultivation in North Eastern India), floods and winds.

### Soil Erosion in India

The areas which have suffered soil erosion in India are generally tracts having sparse vegetation cover like the badlands of lower Chambal and the Yamuna. The vegetation cover in these

areas is sparse, hence, the running water cuts easily into the soil forming deep ravines. In many parts of the plain a high degree of slope induces similar erosion. The dry areas of Rajasthan and Haryana, on the other hand, lose their soil cover through wind erosion.

### Soil Conservation

Soil conservation depends on the existing conditions. The most common methods, however, include afforestation, contour cultivation and scientific methods of cultivation keeping in view land-form characteristics. One preventive measure is to reduce the velocity of running water by planting vegetation and laying terraces and river embankments.

### Natural Vegetation

Before discussing about natural vegetation, it would be better to understand the distinction between flora, vegetation and forest.

**Flora** : It refers to the plants of a particular region or period, listed by species and considered as a group.

**Vegetation** : It refers to the assemblage of plant species living in association with each other in a given environment - often termed ecological frame.

### Forests

Forest is a large tract covered by trees and shrubs. It consists of forests, grassland and scrub.

Natural vegetation in India is rich and diverse because of varied relief features, land forms, terrain, soil, temperature differences and varying amount of rainfall. India is divided into the following major vegetational regions:

### Tropical evergreen or Rain forests

These forests occur in areas where the rainfall exceeds 200 cm. The average annual temperature is between 20°C to 27°C and average annual humidity exceeds 77 per cent. The trees are evergreen and dense and forests have a three-storied appearance. These forests are found in western parts of Western Ghats, eastern part of

### Main Crops of India

Crop	Rainfall (in cm)	Temperature (in °C)	Production (1997-98) (million tonnes)	Leading producers in decreasing order
Rice	150-200	20-27	82.3	West Bengal, Uttar Pradesh, Andhra Pradesh, Bihar
Wheat	50-150	10-15	65.9	Uttar Pradesh, Punjab, Haryana, Madhya Pradesh
Jwar	30-100	27-32	8.0	Maharashtra, Madhya Pradesh, Karnataka, Andhra Pradesh
Maize	50-100	21-27	10.9	Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar
Sugarcane	75-120	20-30	276.3	Maharashtra, Uttar Pradesh, Tamil Nadu, Karnataka
Cotton	50-100	20-40	11.1	Maharashtra, Gujarat, Punjab, Andhra Pradesh
Groundnut	50-75	20-25	7.8	Gujarat, Andhra Pradesh, Tamil Nadu, Maharashtra
Rapeseed & Mustard	25-40	15-20	4.7	Uttar Pradesh, Rajasthan
Jute	170-200	27-34	11.0	West Bengal, Bihar, Assam
Soyabean	100	21	6.5	Madhya Pradesh, Rajasthan, Maharashtra
Tea	150-250	13-35	812.3 m. kg.	Assam, West Bengal, Tamil Nadu
Tobacco	50-80	20-25	-	Andhra Pradesh, Gujarat, Uttar Pradesh
Bajra	50-70	25-35	7.7	Rajasthan, Gujarat, Maharashtra
Ragi	50-120	27-32	-	Karnataka, Orissa, Tamil Nadu
Gram	30-50	15-25	6.1	Madhya Pradesh, Uttar Pradesh, Rajasthan
Cocoa	125-200	15-28	2.28 lakh tonne	Karnataka, Tamil Nadu, Kerala
Rubber	200-300	21-35	5.84 lakh tonne	Kerala, Tamil Nadu

subtropical himalayas (Tarai), north east India comprising Lushai, Cachar, Khasi, Jaintia and Garo hills and most of Andaman and Nicobar Islands. These forests may be sub divided into the following sub-types :

(i) **Tropical wet evergreen forests** : They cover 4.5 m. ha area and are found along the western side of the western ghats, in a strip running south-west from Arunachal Pradesh, upper Assam, Meghalaya, Nagaland, Manipur, Tripura and Andaman and Nicobar Islands. Here the rainfall exceeds 300 cms. The forests are lofty, dense, evergreen and multistoried. The main species of trees found are poon, toon, chaplas, rosewood, ebony, sissoo, ironwood, gujan, pila champa etc. The undergrowth consists of canes, bamboo, ferns, climbers etc. Due to the dense undergrowth and lack of transport these forests have not been exploited.

(ii) **Tropical semi-evergreen forests** : Where the rainfall is somewhat less than 200 cms,

the mean annual temperature between 24°C to 27°C and humidity percentage is 80, the evergreen forests degenerate into semi-evergreen forests. These cover 1.9 m. ha area. These forests are found on the western coast, in upper Assam, lower slopes of eastern, himalayas, Orissa and neighbouring hills and in Andaman and Nicobar islands.

The forests have evergreen trees mixed with deciduous types. The important species include aini, semul, gutel, mundani, hopea, bentleak, kadam, irul, rosewood, haidu, kanju, champa, mango, Indian chestnut, thorny bushes, canes, ferns and orchids

(iii) **Tropical moist deciduous forests** : such forests occur in areas of low annual rainfall of 100 cm to 150 cm. The main annual temperature is between 26°C to 27°C, and humidity percent is 60 to 80. These forests cover 23.3 m ha and are found in a belt running north-south on eastern slopes of western ghat, central plateau

teaching; highly acidic in nature. These soils are concentrated in Vindhyan Plateau, Satpura, Mahadeo and Maikal ranges in Madhya Pradesh, Malabar coast, Orissa coast and Meghalaya.

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Soyabean	100	21	6.5	Madhya Pradesh, Rajasthan, Maharashtra
Tea	150-250	13-35	812.3 m. kg.	Assam, West Bengal, Tamil Nadu
Tobacco	50-80	20-25	-	Andhra Pradesh, Gujarat, Uttar Pradesh
Bajra	50-70	25-35	7.7	Rajasthan, Gujarat, Maharashtra
Ragi	50-120	27-32	-	Karnataka, Orissa, Tamil Nadu
Gram	30-50	15-25	6.1	Madhya Pradesh, Uttar Pradesh, Rajasthan
Cocoa	125-200	15-28	2.28 lakh tonne	Karnataka, Tamil Nadu, Kerala
Rubber	200-300	21-35	5.84 lakh tonne	Kerala, Tamil Nadu

subtropical himalayas (Tarai), north east India comprising Lushai, Cachar, Khasi, Jaintia and Garo hills and most of Andaman and Nicobar Islands. These forests may be sub divided into the following sub-types :

(i) **Tropical wet evergreen forests :** They cover 4.5 m. ha area and are found along the western side of the western ghats, in a strip running south-west from Arunachal Pradesh, upper Assam, Meghalaya, Nagaland, Manipur, Tripura and Andaman and Nicobar Islands. Here the rainfall exceeds 300 cms. The forests are lofty, dense, evergreen and multistoried. The main species of trees found are poon, toon, chaplas, rosewood, ebony, sissoo, ironwood, gurjan, pila champa etc. The undergrowth consists of canes, bamboo, ferns, climbers etc. Due to the dense undergrowth and lack of transport these forests have not been exploited.

(ii) **Tropical semi-evergreen forests :** Where the rainfall is somewhat less than 200 cms,

the mean annual temperature between 24°C to 27°C and humidity percentage is 80, the evergreen forests degenerate into semi-evergreen forests. These cover 1.9 m. ha area. These forests are found on the western coast, in upper Assam, lower slopes of eastern, himalayas, Orissa and neighbouring hills and in Andaman and Nicobar islands.

The forests have evergreen trees mixed with deciduous types. The important species include aini, semul, gutel, mundani, hopea, benteak, kadam, irul, rosewood, haldia, kanju, champa, mango, Indian chestnut, thorny bushes, canes, ferns and orchids.

(iii) **Tropical moist deciduous forests :** such forests occur in areas of low annual rainfall of 100 cm to 150 cm. The main annual temperature is between 26°C to 27°C, and humidity percent is 60 to 80. These forests cover 23.3 m. ha and are found in a belt running north-south on eastern slopes of western ghat, central plateau

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including Chotanagpur, Upper Mahanadi Valley and hills of Madhya Pradesh, Himalayan foothills, hilly areas of eastern part of Deccan including eastern ghats in Tamilnadu and Andaman and Nicobar islands. These forest trees shed their leaves and are the most important forests yielding commercial timber. The species of trees include sal, teak, arjun, jarul, laurel, Andaman paduk, ebony, mulberry, kussum, kanju, ber, gular, palas, haldu, sim, mahua, simul, har, sandalwood, jamun etc. Most of these forests have been cleared from level land for cultivation.

**(iv) Littoral and swamp forests :** These forests cover 6 lakh ha and occur in and around tidal creeks and river deltas. They are found in thickets on western coast at a few places but on the eastern coast they form a continuous belt on the fringe of deltas of Ganga, Mahanadi, Godavari, Krishna and Cauvery. They are densest in Sunderbans, where sundari trees predominate. These evergreen species like arjun, sundari, bhara etc. have still like submerged in water.

### Dry tropical forests

These forests occur in areas having annual rainfall between 75 cms to 125 cms, mean annual temperature of around 23°C and humidity between 51 to 55 per cent. They are divided into the following 3 types:

**(i) Tropical dry deciduous forests :** These forests cover 29.2 m ha area and are found in a very large area covering a wide strip along north-south from the foothills of Himalayas to Kanyakumari except in Rajasthan, western ghats and West Bengal. The important trees include teak, tendu, sal, bhasal, rosewood, palas, bel, lendu, axilewood, anjar, harra, khair etc. Large tracks of these forests have been cleared for cultivation.

**(ii) Tropical thorn forests :** These forests cover 5.2 m ha area. They are restricted to areas where rainfall is very low i.e. between 50 cm to 75 cm, the mean annual temperature is between 25°C to 27°C and humidity is less than 47 per cent. They are found in Kutch neighbouring parts of Saurashtra, a large strip in south western Punjab,

western Haryana, western and northern Rajasthan, Upper Ganga plains, Deccan plateau and lower peninsular India. Here thorny trees especially acacias predominate. The trees include famarix, khair, kokko, dhaman, babool, reunjha, thor, cactii, khejra, kanlu, palas, Ak, neem etc.

### (iii) Tropical dry evergreen forests :

These forests cover an area of 7 lakh ha and occur in areas where the mean annual rainfall is about 100 cms, mean annual temperature is about 28°C and mean annual humidity is 74 per cent. These forests are found in the east coast of the peninsula from Tamilnadu north to Nellore. The important species of trees include khirni, jamun, kokko, riha, neem, toddy, palm, gamari etc.

### Riparian forests

Where the rainfall is less than 50 cms, short trees and grass predominate. These forests are found along banks of rivers and wet lands. Deciduous vegetation like neem, shisham, pipal, mango, jamun, khair are usually found. Kans and munj grass are found in abundance.

### Subtropical broad leaved hill forests

The forests cover 3 lakh hectare area and are found between 915 to 1830 m height above sea level where the mean annual rainfall is between 75 cm to 125 cm, mean annual temperature is between 18°C to 21°C and humidity percentage is 80. These forests are found in high lands of Bastar, Panchmarhi, Mahabaleshwar, Nilgiris, Pann and Khasi hills and lower slopes of Himalaya.

West Bengal and Assam. Such forests are found only in South India. The trees include khair, cactii etc.

### Montane wet temperate forests

These forests cover an area of 1.6 m ha. They occur at a height of 1800 to 3000 m above sea level in areas where annual rainfall is between 150 to 300 cms, annual temperature is between 11°C to 14°C and humidity per cent is 83. These forests are found in hills of Tamilnadu, Kerala, Eastern Himalayas, higher hills of West Bengal, Assam and Arunachal Pradesh. The main trees

found are deodar, Indian Chestnut, mangolia, birch, plum, blue pine, Oak, hemlock etc.

### Montane moist temperate forests

They cover an area of 2.7 m ha. They occur in temperate eastern and western Himalayas between the pine and alpine forests in Kashmir, Himachal Pradesh, Punjab, Uttar Pradesh, Darjeeling and Sikkim between 1600 to 3500 meters. The forests are predominantly coniferous forests and include trees like pine, deodar, spruce, silver fir, oak, beach, birch, polar, elm, chestnut, maple, rhododendrons etc.

### Alpine forests

They cover an area of 300 ha. They occur in the Alpine areas of the Himalayas beyond the limit of tree growth i.e. between 2900 to 3500 m and consist of dwarf shrubs of juniper, fir, honey suckle, betula, birch, rhododendrons etc. At still higher altitude, shrubs of low herbs is the only vegetation found.

### Grasslands

These grasslands are divided into three types (i) Hilly or upland grassland. They are found in Himalayas above 100 m and in deccan hills (ii) low land grasslands - They occur in plains of Punjab, Haryana, Uttar Pradesh, Bihar and north western parts of Assam (iii) Riverine grasslands. They are found in riverine tracks of northern India especially in the bhabhar tracks.

## Flora and Fauna

Owing to a wide range of climatic condition, India can boast of a rich and varied vegetation. In the remote hilly tracts of the Himalayas and Deccan mountains, a large number of endemic flora i.e. plants that have grown there for millions of years and are not found to grow naturally elsewhere in the world, is found here.

In recent years, many of these endemic

## Largest natural lakes of the world

Name	Location	Area (Sq km)	Maximum depth (meters)
Caspian sea	Russia, Iran	371000	1025
Superior	USA, Canada	82,100	406
Victoria	Uganda, Kenya, Tanzania	69,400	82
Aral Sea	Russia	69,400	82
Huron U.S.A.	Canada	59,600	229
Michigan	U.S.A	57,800	281
Tanganyika	Burundi, Tanzania, Zambia, Zaire	32,900	1470
Bay of Kaliningrad	Russia	31,500	1620
Great Bear	Canada	31,200	446
Nyasa	Tanzania, Mozambique	28,900	695
Great Slave	Canada	28,500	614
Erie	U.S.A	25,600	64
Winnipeg	Canada	24,300	18
Ontario	U.S.A, Canada	18,900	224

plants are facing extinction because of ecological disturbance. There are eight Floristic regions in India:

- (i) The Western Himalayas
- (ii) The Eastern Himalayas
- (iii) Assam
- (iv) The Indus Plain
- (v) The Ganga Plain
- (vi) Deccan
- (vii) Malabar
- (viii) Andamans.

India has a great variety of fauna, with about 500 species of mammals and 2,100 species of birds and reptiles. Some rare and extinct species are found in certain pockets in India. Important among them are the Asiatic lion, now confined to the Gir forest; the one horned rhinoceros, a vanishing species in Assam and the great Indian bustards, now rarely seen in Rajasthan.

Some plant and animal species are protected under various schemes and a number of wildlife sanctuaries have been planned for the conservation of animal species. The National Wildlife Action Plan was adopted in 1983. It provides the



framework of strategy as well as programme for wildlife conservation.

The wildlife & reserves in India can be classified into 'National Parks' and 'Wildlife Sanctuaries'. The National parks protect the entire ecosystem, whereas wildlife sanctuaries have the special purpose of preserving animals and birds. There are, at present, 68 national parks including marine parks, high altitude parks and parks in protected areas of Andaman and Nicobar and 367 wildlife sanctuaries.

The 'Red Panda' project was started in 1996 in the Padmaja Naidu Himalayan Zoological Park. The 'Manipur Brow Antler deer project' was started in 1977 in Cabul Lampoa in Manipur near the Loktak lake. The 'Gir Lion sanctuary project' was launched by the Gujarat government in the Gir wildlife sanctuary in 1972. The 'Himalayan musk deer project' was started in the Kedarnath sanctuary in Uttar Pradesh. The 'crocodile project' was started in 1975 in Orissa. Later Uttar Pradesh, Rajasthan, West Bengal, Tamil Nadu, Andhra Pradesh, Gujarat, Kerala, Madhya Pradesh, Bihar, Andaman and Nicobar islands and Nagaland were included in this project. 'Project Hangul' was started in 1970 in the Dachigam national park in Jammu and Kashmir.

The national bird of India, the peacock, is found along with many species of birds throughout India. The only ape found in India is the hoolock in Assam.

### Irrigation System in India

The source of irrigation depends upon the water availability, topography, relief, availability of soil and moisture, requirements of crop. Important sources of irrigation in India include

#### Wells

Wells are the most basic sources of irrigation in India. It depends upon the availability of ground water. The great plains, the deltaic regions of the Mahanadi, Godavari, Krishna and Cauvery are important regions of well irrigation.

### Tanks

Located in the rocky region of the Peninsula, the tanks are non-perennial in nature and additional water is needed in summer. About 11% of the net irrigated area in India is under tank irrigation. The Karnataka plateau, coastal Maharashtra, Andhra Pradesh, Tamil Nadu have this kind of irrigation.

### Canals

India has one of the world's largest areas under canal irrigation. About 40% of the net irrigated area comes under canal irrigation. Uttar Pradesh, Punjab, Haryana, Rajasthan, Bihar, Andhra Pradesh are the main regions.

### Multi-purpose projects aim at:

- (a) Flood Control
- (b) Promotion and operation of irrigation schemes, water supply
- (c) Generation and Transmission of electric power
- (d) Promotion and control of irrigation
- (e) Afforestation and other economic activity generation

## National Parks and Wild Life

### Sanctuaries of India

**National Park/Sanctuary : Place (State)**

Kaziranga National Park : Jorhat (Assam)

Manas Wildlife Sanctuary : Barpet (Assam)

Sonai Rupa Wildlife Sanctuary : Tejpur (Assam)

Cumam Pani Wildlife Sanctuary : Difu (Assam)

Namdapha Wildlife Sanctuary : Tirap : Arunachal Pradesh

Dehing Wildlife Sanctuary : Kameng (Arunachal Pradesh)

Indira Gandhi Wildlife Sanctuary : Varanasi (UP)

Corbett National Park : Nainital (Uttar Pradesh)

Dudhwa National Park : Lakhimpur Kheri (Uttar Pradesh)

Malan Sanctuary : Paudi Garhwal (Uttar Pradesh)

Govind Sanctuary : Uttar Kashi (Uttar Pradesh)

Simlipal Sanctuary : Mayurbhanj (Orissa)

*Kaaval Sanctuary* : Adilabad (Andhra Pradesh)  
*Nalpati Bird Sanctuary* : Nellore (Andhra Pradesh)  
*Pankahl Sanctuary* : Warangal (Andhra Pradesh)  
*Mudumalai Sanctuary* : Nilgiri (Tamil Nadu)  
*Vedanthangal Bird Sanctuary* : Chinglepet (Tamil Nadu)  
*Bandipur National Park* : Bandipur (Karnataka)  
*Dandeli Sanctuary* : Dharwar (Karnataka)  
*Shravati Valley Sanctuary* : Shimoga (Karnataka)  
*Rangathitoo Bird Sanctuary* : Mysore (Karnataka)  
*Banarthatta National Park* : Bangalore (Karnataka)  
*Bhadra Sanctuary* : Chikmangloor (Karnataka)  
*Mukambil Sanctuary* : Canara (Karnataka)  
*Nagarhole National Park* : Durg (Karnataka)  
*Someshwar Sanctuary* : Canara (Karnataka)  
*Tungabhadra Sanctuary* : Bellary (Karnataka)  
*Benurd Sanctuary* : Kozhikhode (Kerala)  
*Irambikulam Rajmalai Sanctuary* : Idukki (Kerala)  
*Parambikulam Sanctuary* : Palghat (Kerala)  
*Periyar Sanctuary* : Idukki (Kerala)  
*Khagchand Jenda National Park* : Gangtok (Sikkim)  
*Dampha Sanctuary* : Aizawl (Mizoram)  
*Balaram National Park* : Banskantha (Gujarat)  
*Gir National Park* : Junagarh (Gujarat)  
*Balwadar National Park* : Bhavnagar (Gujarat)  
*Dachigam Sanctuary* : Sri Nagar (Gujarat)  
*Ilaangfi Santuary* : Kohima (Nagaland)  
*Jaldapara Sanctuary* : Jalpaigudi (West Bengal)  
*Sunderban* : Tiger Reserve, 24 Pargana (West Bengal)  
*Palamau Sanctuary* : Daltongunj (Bella) Bihar  
*Bhimbandh Sanctuary* : Monghyr (Bihar)  
*Gautam Buddha Sanctuary* : Gaya (Bihar)  
*Hazaribagh Sanctuary* : Hazaribagh (Bihar)  
*Dalma Sanctuary* : Singghum (Bihar)  
*Panchmarhi Sanctuary* : Hoshangabad (Madhya Pradesh)  
*Madhav Nation Park* : Shivpuri (Madhya Pradesh)  
*Bori Sanctuary* : Hoshangabad (Madhya Pradesh)  
*Kanha Kisli National Park* : Balaghat (Madhya Pradesh)  
*Bandhavgarh National Park* : Shahdol (Madhya

Seasons	Months according to Indian Calender	Months according to English Calender
Vasanta	Chaitra-Baisakha	March-April
Grishma	Jyestha-Asadha	May-June
Varsha	Sravana-Bhadra	July-August
Sharada	Asvina-Kartika	Sept.-October
Hemanla	Margashira-Pausa	Nov. December
Shishira	Magha-Phalgun	Jan.-Feb.

*Pradesh)*  
*Indravati National Park* : Bastar (Madhya Pradesh)  
*Fossil National Park* : Mandla (Madhya Pradesh)  
*Panna National Park* : Panna (Madhya Pradesh)  
*Sanjay National Park* : Sidhi (Sarguja) Madhya Pradesh  
*Satpura National Park* : Hoshangabad (Madhya Pradesh)  
*Badalkhol Sanctuary* : Raigarh (Madhya Pradesh)  
*Bhairamgarh Sanctuary* : Bastar (Madhya Pradesh)  
*Udayanti Sanctuary* : Raipur (Madhya Pradesh)  
*Sita Sanctuary* : Raipur (Madhya Pradesh)  
*Tamoi Pingala Sanctuary* : Sargiya (Madhya Pradesh)  
*Ratapani Sanctuary* : Raipur (Madhya Pradesh)  
*Sinthauli Sanctuary* : Raisen (Madhya Pradesh)  
*Sansingharh Sanctuary* : Raigarh (Madhya Pradesh)  
*Borivalli Sanctuary* : Mumbai (Maharashtra)  
*Tadova Sanctuary* : Chandrapur (Maharashtra)  
*Tansa Sanctuary* : Thane (Maharashtra)  
*Pench Sanctuary* : Nagpur (Maharashtra)  
*Nevgaon National Park* : Bhandara (Maharashtra)  
*Ranthambhor National Park* : Sawai Madhopur (Rajasthan)  
*Sariska Sanctuary* : Alwar (Rajasthan)  
*Kevladev Ghana Bird Sanctuary* : Bharatpur (Rajasthan)  
*Sikrivedi Sanctuary* : Mandi (Himachal Pradesh)  
*Rohela Sanctuary* : Kulu (Himachal Pradesh)  
*Ross Island National Park* : Ross Island (Andaman and Nicobar)

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*Marine National Park* : Andaman (Andaman and Nicobar)

### Biosphere Reserves in India

Reserve	State
<i>Nilgiris</i>	Tamil Nadu, Kerala, Karnataka
<i>Nam Dapha</i>	Arunachal Pradesh
<i>Nandadevi</i>	Uttar Pradesh
<i>Uttarakhand</i>	Uttar Pradesh
<i>Northern Islands of Andaman</i>	Andaman and Nicobar
<i>Gulf of Mannar</i>	Tamil Nadu
<i>Kaziranga</i>	Assam
<i>Sunderbans</i>	West Bengal
<i>Thar Desert</i>	Rajasthan
<i>Manas</i>	Assam
<i>Kanha</i>	Madhya Pradesh
<i>Norrek (Tura Range)</i>	Meghalaya
<i>Simplipal</i>	Orissa
<i>Wetlands in India</i>	Wetland State
<i>Kolleru</i>	Andhra Pradesh
<i>Wular</i>	Jammu and Kashmir
<i>Chilika</i>	Orissa
<i>Itanagar</i>	Manipur
<i>Bandhavgarh</i>	Madhya Pradesh
<i>Bandhavgarh</i>	Rajasthan
<i>Bandhavgarh</i>	Rajasthan
<i>Ashtamudi</i>	Kerala
<i>Saslihamkotta</i>	Kerala
<i>Hanke</i>	Punjab
<i>Kanjali</i>	Punjab
<i>Ujini</i>	Maharashtra
<i>Reuna</i>	Uttar Pradesh
<i>Kabar</i>	Bihar
<i>Nalsarovar</i>	Gujarat
<i>Sukhna</i>	Chandigarh

### Mangroves in India

Mangrove	State
<i>Northern Andaman and Nicobar</i>	Andaman and Nicobar
<i>Sunderbans</i>	West Bengal
<i>Bhitarkanika</i>	Orissa

*Loringa* Andhra Pradesh  
*Krishna Estuary* Andhra Pradesh  
*Godavan Delta* Andhra Pradesh  
*Mahanadi Delta* Orissa  
*Pichavaram* Tamil Nadu  
*Point Calimere* Tamil Nadu  
*Goa* Goa  
*Gulf of Kutch* Gujarat  
*Coondapur* Karnataka  
*Achra* Maharashtra  
*Rainagar* Maharashtra  
*Vembanad* Kerala

## Economic Geography of India

### Agriculture

Indian agriculture provides livelihood to about 70% of the working force, contributes nearly 35% of net national product and accounts for sizeable share of total value of country's exports. It also supplies bulk of wage goods required by non-agricultural sector and raw material for a large section of industry.

### Cropping Season in India

India has many growing seasons due to prevalence of high temperature through a long period. Different crop seasons are :

**Kharif** : Crops are sown at the beginning of the South-West monsoon and harvested at the end of the south-west monsoon.

**Important crops** : Jowar, bajra, rice, maize,

Jute, groundnut, sugarcane, tobacco etc.

**Rabi** : Crops need relatively cool climate during the period of growth but warm climate during the germination of their seed and maturation. Sowing season (October-December) and harvesting season (February-April)

**Important Crops** : Wheat, barley, gram, linseed, mustard, masoor, peas and potatoes.

**Zaid** : Crops which are being raised throughout the year due to artificial irrigation.

(i) **Zaid Kharif** : Sworn in August - October and harvested in Dec.-Jan. Important crops include - rice, jawar, rapeseed, etc.

(ii) **Zaid Rabi** : Sworn in February - March and harvested in April-May. Important crops are watermelon, toris, cucumber, leafy and other vegetables.

## **Animal Husbandary**

India has the largest and most varied animal resources in the world and it has about 1/6th of the cattle, 1/2 of the buffalo and 1/5th of the goat population in the World.

India has a good number of milk breeds. Shival, Red Singhi and Deoni are some of the outstanding breeds. India has gone for the world's largest and most ambitious milk programmes called 'operation flood'. Drought breeds are poor milk yields, but the bullocks are excellent draught animals. About 42% of the cattle in the country are draught animals.

India has 3% of the world's sheep population and ranks 6th among the sheep-breeding countries of the world. Rajasthan has the largest (24%) of India's total stock. India is going to become the largest milk producer in the world.

## **Fishery**

India is the world's 7th largest producer of fish. Production of fish in India is small, being only about 2.4% of the total world production. 72% of the total catch is brought by non-mechanised boats. Marine fisheries account for 2/3rd and inland fisheries for 1/3rd of India's fish production. The present per capita consumption of fish in India is only 4kgs/year against a desired consumption level of 31 kgs/year.

## **Minerals of India**

<b>Minerals</b>	<b>(Producing area)</b>
Bauxite	Madhya Pradesh (Jabalpur, Bilaspur, Sarguja, Mandla, Sahdol, Katni, Balaghat, Durg, Raigarh) Bihar (Lohar-daga, gumla, Chan-dwa),

Barytes	Maharashtra (Ratnagiri, Udaigiri, Kolhapur, Thane) Andhra Pradesh (Vishakhapatnam, east and west Godavari districts), Gujarat (Jamnagar, Kheda, Surat, Broach), Jammu and Kashmir (Jammu, Poonch), Tamil Nadu (Sevarai and Salaradu peaks), Karnataka (Bokaner, Trebhigh ridge, Bhogalgarh plateau), Orissa (Kalahandi, Koraput, Sambalpur).
Asbestos	Andhra Pradesh (Cuddapah, Mangampet - largest deposit in the world), Bihar (Singhbhum, Ranchi), Himachal Pradesh (Sirmaur, Jagdhari), Madhya Pradesh (Dewas, Salimabad), Tamilnadu (Arcot, Coimbatore)
Coal	Bihar (Singhbhum), Andhra Pradesh (Cudappa), Rajasthan (Bhilwara), West Bengal (Raniganj, Burdwan, Bankura, Purulia, Birbhum, Jalpaiguri, Darjeeling), Bihar (Jharia, Giridih, Kharhawadi, Bokaro, Hazari-bagh, Karnapura, Rampur, Palamau), Orissa (Rampur, Hindgeer, Talcher, Sambal), Madhya Pradesh (Rewa, Pench valley, Umaria, Korba, Sohagpur, Jhagarkhand, Mand river area, Kanha valley, Betul), Maharashtra (Nagpur, Wardha valley, Chanda, Majri) Assam (Garo hills, Baljong), Andhra Pradesh (Kathguddam, Singra-aini, Tandur), Arunachal Pradesh (Namchik river valley), Himachal Pradesh (Saket, Mandi)
Lignite	Tamilnadu (Neyveli), Kashmir (Baramullah, Chokibal), Kerala (Tiruvananthapuram, Quilon), West Bengal (Jainti river area, Burja hills)
Chromite	Bihar (Singhbhum, Silli, Bhagalpur), Kashmir (Deras valley, Burzhom), Tamilnadu (Chouka hills).



## Main rock forming minerals

(1) Feldspar	Main elements - Silicon, Oxygen, Sodium, Potassium, Calcium, Aluminium, etc.	Half of the crust is composed of field spar. It is light coloured. It is of three types Plagioclase, orthoclase, & microcline.
A. Orthoclase	Potassium Aluminium, Silica	Creamy or rosy, cleaved
B. Plagioclase	Sodium, Calcium, Silica	White or brown, green, cleaved
C. Microcline	Potassium, Aluminium, Silica,	It is like creamy or red or green, cleaved. orthoclase but its structure is different.
(2) Quartz	Silica	Hexagonal Crystals, uncleaved, white or colourless, it cracks like glass, present in sand and granite.
(3) Pyroxenes	Calcium, Aluminium, Magnesium, Iron, Silica	Stout, green or black, dull lustre, not used in industry.
(4) Amphiboles	Calcium, Magnesium, Iron, Aluminium, Silica	Fibrous, green or black, glittering, silky used as poor asbestos.
(5) Mica	Potassium, Aluminium, Magnesium,	Cleaved, broken into the layers, colourless, white or iron, Silica black, used in electrical industry.
(6) Olivine	Magnesium, Iron, Silica sugar, used in the	Glassy, green or yellow, like granulated manufacturing of refractories, floor, etc.

Nickel	Orissa (Cuttack, Keonjhar, Mayurbhanj), Bihar, Manipur, Nagaland, Karnataka, Rajasthan, Maharashtra.
Titanium or ilmenite	Gujarat (Surat, Jamnagar), Kerala (Quilon, Kanya Kumari), Maharashtra (Ratnagiri, Rajawada, Bhatia, Gonkhadi), Orissa (Wheeler island, Chandwati).
Tungston	Rajasthan (Degana), Mahara-shtra, Karnataka, West Bengal, Uttar Pradesh.
Thorium	Kerala (Quilon)
Uranium	Bihar (Jadugoda), Rajasthan (Ajmer), Andhra Pradesh (Nellore Nalgonda, Takida-ppa), Karnataka (Gulbarga)
Zinc	Rajasthan (Zawar, Sawai Madhopur, Alwar, Bans-wara, Dungarpur), Orissa, Andhra Pradesh.
Oil	Assam and Meghalaya (Digboi, Natural Gas Nahar-kalia, Surma valey), Gujarat (Cambay, Ankleshwar), Mum-bai, High, Krishna- Godavari area, Rajasthan (Jaisalmer, Bikaner).

Minerals can be classified under three

categories .

**Fuel Minerals :** Coal, Lignite, Petroleum and Natural gas

**Metallic Minerals :** Iron, copper, Gold, bauxite, Chromite etc.

**Non-Metallic Minerals :** Limestone, magnesite and dolomite

\* According to the Geological Survey of India, there are 50% important minerals occurring in 400 major sites in the different parts of the country.

### Important Industries in India

#### Cotton Textiles

Most important industry in terms of employment and production of export goods. Although Maharashtra and Gujarat are the chief centres, other important states in this field are Tamil Nadu, West Bengal, Madhya Pradesh, Karnataka and Andhra Pradesh. Tamil Nadu has the largest number of cotton textile mills in India.

#### Jute Textiles

India manufactures the largest quantity of

jute goods in the world. Mainly located in West Bengal, followed by Andhra Pradesh, Bihar, UP and MP

### Sugar Industry

Ranks second amongst the major agro-based industries. The concentration of mills is in Uttar Pradesh, Maharashtra, Tamil Nadu etc

### Iron and Steel Industries

They are located near the sources of raw material at Jamshedpur, Burnpur, Bhadravati, Bokaro, Rourkela, Durgapur, Bhilai, Salem and Visakhapatnam. Except for the Tata Iron and Steel Company (TISCO) plant at Jamshedpur, all of them are in public sector

The Bhilai and Bokaro plants were established with the erstwhile Soviet collaboration, the Durgapur plant with British collaboration and the Rourkela plant with German collaboration

### Aluminium Industry

It is located mainly near the sources of raw material means of transport and cheap electricity. Important smelting units are Belgaum, Hirakud, Alwaye, Renukoot, Mettur, Koraput, Korba and Ratanapur

### Engineering Industry

Heavy Engineering Corporation at Ranchi produces manufacturing equipments. The Mining and Allied Machinery Corporation is at Durgapur. The Bharat Heavy Plates and Vessels Ltd is at Sakshiguptha. The Bharat pumps and compressors Ltd is at Amalabad. Hindustan Machine Tools with headquarters at Bangalore has factories at Pune (Maharashtra), Palamassery (Kerala), Hyderabad and Sri Nagar (Jammu & Kashmir). The Bharat Heavy Electrical Limited has manufacturing plants at Bhopal, Trichy, Hyderabad, Hardwar, Panipat, Bangalore and Jagdishpur

### Cement Industry

Tamil Nadu, Madhya Pradesh, Bihar, Gujarat, Karnataka, Andhra Pradesh and Rajasthan etc

### Pharmaceuticals and Drugs

Antibiotics are produced at Pimpri and Rishikesh. The Indian Drugs and Pharmaceuticals Ltd has 5 plants at Hyderabad, Rishikesh, Madras, Gurgaon and Muzaffarpur. A number of other units are concentrated in Bombay, Baroda, Delhi, Calcutta and Kanpur

### Paper Industry

It is a forest based industry. Most of the paper production units are in West Bengal, Andhra Pradesh, Orissa, Maharashtra, Karnataka, Madhya Pradesh and Bihar. The National Newsprint and Paper Mills Ltd is located in Nepanagar (M.P.)

### Fertilizers

The first public sector fertilizer factory was established at Sindri (Bihar) in 1951. The Fertilizer Corporation of India has four units at Sindri, Gorakhpur, (U.P.), Talcher (Orissa) and Ramagundam. The National Fertilizer Ltd. has units at Nangal, Bhatinda and Panipat. Tamil Nadu, Uttar Pradesh, Gujarat, Kerala and Andhra Pradesh lead in the production of fertilizers.

### Photo Films

The Hindustan Photo Films Manufacturing Company at Udagamandalam (Tamil Nadu) is the only factory in the public sector producing photo paper and films

### Transport

Transport and Communication facilities are necessary for the healthy growth of country. Road and rail transport are well developed in India with ample scope for the development of water transport. Ocean waterways are already well developed. Inland waterways require improvement

### Railways

Trains are the most important means of transport. They account for nearly three-fourth the passenger traffic and four-fifth of the freight traffic in India

Indian railways system is the largest in Asia

nd the fourth largest in the world. It is the biggest departmental public undertaking in the country. It also the world's second largest railway system under a single management.

The Indian railways operate in four different gauge.

Broad Gauge (1.7 metre)

Metre Gauge (1 metre)

Narrow Gauge (0.7 metre)

Light Gauge (0.6 metre)

The broad gauge accounts for nearly 50% followed by metre gauge 43% of the total route length.

### Railway Zones

Railways are divided into 15 zones, headed by a General Manager who is responsible to the Railway Board for operation, maintenance zones even financial matters. Out of the 15 zones, 9 ones are given below with their headquarters, and the route in kilometer:

Central (Bombay Victoria terminus, 6846km.)

Eastern (Calcutta : 4,290km.)

Northern (New Delhi, 10, 982km.)

North Eastern (Gorakhpur : 5,145km.)

North -East Frontier (Maligaon - Guwahati, 3,760km.)

Southern (Madras: 6758km.)

South - Eastern (Calcutta; 7,116 km.)

Western (Bombay -Churchgate; 9,886 km.)

The first train in India steamed off from Bombay to Thane, a stretch of 34 km. in 1853. The network of railway has increased upto 62,915 km.

### Road Transport

India's road network is one of the largest in the world; the total length of the roads being more than 27 lakh kilometers. Karnataka, with a total road length of about 64,000 km, leads, followed by Madhya Pradesh and Uttar Pradesh. Roads are most suitable for short and medium distance. Other advantages include flexibility, reliability, speed and door to door service.

### Agriculture Related Institutes

1. Indian Council of Agricultural N.Delhi (Delhi) Research
2. Dairy Research Institute Karnal (Haryana)
3. Indian Botanical Survey Calcutta (W.B.)
4. Jute Research Institute Bairakpur (W.B.)
5. Goat Research Institute Mathura (U.P)
6. Sugarcane Research Institute Lucknow (U.P)
7. Bee Research Institute Pune (Maha)
8. Cotton Research Institute Bombay (Maha)
9. Poultry Training Institute Bangalore (Kar.)
10. Silk Research Institute Mysore (Kar.)
11. Coffee Research Institute Chickmangalur (Kar.)
12. Leather Research Institute Madras (T.N)
13. Potato Research Institute Shimla (H.P)
14. Tea Research Institute Jorhat (Assam)
15. Rubber Research Institute Kottayam (Kerala)
16. Tobacco Research Institute Rajmundn (A.P.)
17. Rice Research Institute Cuttack (Orissa)
18. International Centre for Plantation Affair Banglaore (Kar.)
19. National Research Centre for spices Calicut (Kerala)
20. Indian Dairy Corporation Anand (Gujarat)

For the purpose of maintenance and construction, roads are classified into : National Highways, State Highways, Village Roads, Border Roads, International Highways

There are about 30 National Highways connecting state capitals and have been constructed by the Central government. The present National Highway system includes a total length of 33,612 km. It constitutes only 2% of total road length and carries nearly 1/3rd of the road traffic. Some of the most important National Highways are listed below.

### National Highways

National Highway	Places connected
No. 1. New Delhi-Ambala-Jalandhar- Amritsar.	
No. 2. Delhi - Mathura - Agra - Kanpur - Allahabad - Varanasi- Calcutta.	



## NATIONAL NETWORK

- No. 3. Agra - Gwalior - Nasik - Bombay  
No. 4. Thana and Madras Via Pune and Belgaum  
No. 5. Calcutta and Madras  
No. 6. Calcutta - Dhule  
No. 7. Varanasi - Kanyakumari  
No. 8. Delhi - Bombay (Via Jaipur, Baroda & Ahmedabad)  
No. 9. Bombay - Vijayawada  
No. 10. Delhi - Fazilka  
No. 11. Jaipur - Bikaner  
No. 22. Ambala - Kalka - Shimla - Rampur - Chini (Indo-Tibet Border)  
No. 24. Delhi - Bareilly - Lucknow

At present India has 5 express highways. They are Western, Eastern, between Calcutta and Dumdum (iv) between Sukinda mines and Paradeep (v) between Durgapur and Calcutta

### Ports

There are 11 major ports and 139 minor working ports in India. Major ports are the direct responsibility of the Central government while minor ports including the intermediate ports fall in the concurrent list of the Indian Constitution and are managed and administered by the respective maritime state governments.

*Major Ports on the Western Coast* Kandla (Gujarat), Bombay (Maharashtra), Marmugao (Goa), New Mangalore (Karnataka), Cochin (Kerala), Nhava Sheva (Maharashtra)

*Major Ports on the Eastern Coast* Tuticorin (Tamil Nadu), Madras (T.N.), Visakhapatnam (Andhra Pradesh), Paradeep (Orissa) and Calcutta-Haldia (West Bengal)

Among major ports, Bombay is the biggest. Kandla is a tidal port. Marmugao enjoys the second position by value of the tonnage of traffic, bulk of which is export of iron ore. Visakhapatnam is the deepest land-locked and protected port. Madras has an artificial harbour. Calcutta is a riverine port. Haldia has a fully equipped containerised berth.

### Air Transport

There are five international airports - Delhi

(Indira Gandhi International Airport - Palam), Calcutta (Dum Dum), Bombay (Santa Cruz), Madras (Meenambakkam) and Kavaratti (Thiruvananthapuram). Besides, there are 87 aerodromes and 20 civil enclaves maintained by the Civil Aviation Department. The Civil Aviation Centre at Allahabad provides, among other things, ground training to the pilots.

## Communications

### Posts and Telegraphs

The first Indian postal stamp was issued in 1852 in Karachi. The Postal department was set up in 1854 when nearly 700 post offices were already functioning. Today, there are about 1,45,000 post offices.

For the efficient and correct handling of the volume of mail, a numerical postal address code known as the Postal Index Number (PIN), introduced with digits which help to identify and locate every departmental delivery post office excluding branch post offices. The first digit indicates the region, the second the subregion, the third the sorting district whereas the last three digits indicate a particular delivery zone of a post office in the areas served by the sorting district. The entire country has been divided into PIN code zones as given in the following table.

### Zone No. States/Union Territories covered

1. Delhi, Haryana, Punjab, Chandigarh, Himachal Pradesh.
2. Uttar Pradesh
3. Rajasthan, Gujarat, Daman and Diu, Dadra and Nagar Haveli
4. Maharashtra, Goa, Madhya Pradesh
5. Andhra Pradesh, Karnataka
6. Tamil Nadu, Kerala, Pondicherry, Lakshadweep
7. West Bengal, Assam, Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Orissa, Andaman and Nicobar Islands

1. Bihar

**Telephones**

The Subscriber Trunk Dailing service (STD) was first introduced in India between Kanpur and Lucknow in 1960. The Indian Telephones Industries Ltd. (ITI), Bangalore is engaged in the production of a wide range of telecommunications equipment.

**Social Geography****Population**

India is the second most populous country of the world, next only to China. The first all-India census, though not taken synchronously was completed in 1872. There has been a regular census in India since 1881. Census is taken every ten years. The census of India 1991 is the fifth census since independence. Presently, India's population has approximately reached 1 billion.

**Density of Population**

The density on average is 274 persons per square km. as against 216 in 1981. Density of population is highest in Delhi 6,352 (up from 4,194 in 1981).

Among the states, West Bengal has the highest density at 767 (up from 615 in 1981), Kerala closely follows West Bengal at 749 (up from 655); reversing the 1981 trend this is attributed to the high growth rate of population in West Bengal and the low growth rate of population in Kerala. In West Bengal, among the factors that have contributed to this increase are a spurt in migration from across the international border as also from other states and attendant factor.

The Lowest density of 10 persons per sq. km. is in Arunachal Pradesh.

**Trend of Growth Rate**

The population of 1991 represents a 23.85% rise over the 1981 census. States that have

**The Earth vis-a-vis the Solar System**

Planet	DFS*	TTCO**	T. in °C***	Satellites
Mercury	58	88 days	350	0
Venus	108	225 days	480	0
Earth	150	365 days	22	1
Mars	228	687 days	-23	2
Jupiter	778	11.9 years	-150	16
Saturn	1,427	295 years	-150	16
Uranus	2,869	84 years	-210	15
Neptune	4,496	165 years	-220	8
Pluto	5,900	248 years	-230	1

\*Distance from the sun (in million km) \*\*Time taken to complete orbit

\*\*\*Temperature in °C

recorded significant decline in growth rate are Tamil Nadu, Karnataka, Gujarat and Goa besides of course Kerala (lowest growth rate of 13.98%).

The six most populous states are Uttar Pradesh, Bihar, Maharashtra, West Bengal, Andhra Pradesh and Madhya Pradesh—account for 59.75% of the country's population. The last four have registered an increase in growth rate.

For the first time since independence, West Bengal has witnessed a reversal of the declining trend in the decadal population growth rates. In U.P. and Bihar the population growth rates have declined by less than one percentage point. Nagaland with a growth rate of 56.86% has the highest growth rate of population in the country.

**Sex Ratio**

Most distinguishing feature is the unexpected decline in sex ratio (number of female/1000). India has 929 females/1000 males in 1991 as against 934 females/1000 in 1981.

Kerala has a higher number of females than males that is 1040 females for 1000 males. Chandigarh accounted for the lowest number of females that is 790 females for 1000 males. There are some states and Union territories in which the sex ratio has always been below the all-India sex ratio. These states and Union territories are Assam, Haryana, Punjab, Rajasthan, Uttar

## NATIONAL NETWORK

Pradesh, West Bengal, Andaman and Nicobar Island.

### Birth Rate

31.3 per 1,000 (33.3 in 1981)  
 Death Rate : 10.9 per 1,000  
 (12.5 in 1981)

### Literacy Rate

Males 63.86%  
 Females 39.42%  
 Total 52.21%

Kerala retained its position by being on top with 90.59% literacy rate (now attained 100% literacy and the first state to do so). West Bengal's Burdwan district became the second district in India to achieve full literacy.

Year	Persons	Males	Females
1951	18.33	27.16	15.34
1971	34.45	45.95	21.97
1981	43.56	56.37	29.75
1991	52.21	63.86	39.29

Bihar stood at the bottom with a literacy rate of 38.48%. But literacy among women was the lowest in Rajasthan (20.44%).

Among Union territories, Lakshadweep has the highest rate of literacy (81.78%) and Dadra and Nagar Haveli the lowest (40.71%).

According to the National Sample Survey in the year 1997 the literacy rate increased to 62 per cent from 52.2 percent. Male literacy is 73 percent and female literacy is 50 per cent. Since independence the literacy rate has increased three times. Female literacy has increased five times.

### Population of Scheduled Castes and Scheduled Tribes

The Scheduled Castes and the Scheduled Tribes together make up about 23.5% (Scheduled Castes 15.75% and Scheduled Tribes 7.76%).

Numerically, Scheduled Castes are largest in Uttar Pradesh followed by West Bengal and

Bihar. There are no Scheduled Castes in Nagaland, Andaman and Nicobar Islands and Lakshadweep. Largest proportion of Scheduled Castes of the total population is in Punjab (26.87%).

Madhya Pradesh has the largest number of Scheduled Tribes followed by Bihar. Bastar district of Madhya Pradesh consists of largest number of Scheduled Tribes. Scheduled Tribes form the largest proportion of the total population in Lakshadweep (93.82%) and Mizoram (93.55%) followed by Nagaland (83.99%) and Meghalaya (80.58%). There are no Scheduled Tribes in Punjab, Delhi, Haryana, Chandigarh, Pondicherry and Jammu and Kashmir.

### (h) Tribal Groups in India

India has a sizeable tribal population with more than 50 tribal groups, next only to Africa. Most tribals belong basically to the Negrito, Australoid and Mongoloid racial stock. Some important tribal groups are :

- Abhors** : People of Mongoloid stock living in the north-eastern parts of India.
- Adivasis** : Tribals of Bastar district of Madhya Pradesh.
- Angami** : Tribals of Manipur and Nagaland.
- Bhils** : People of the Dravidian stock now living in Madhya Pradesh and Rajasthan.
- Garos** : Hill tribe of Assam and Meghalaya.
- Khasis** : Hill tribe of Meghalaya and Assam.
- Gonds** : Forest Tribes of Madhya Pradesh.
- Jaintias** : Hill tribe of Meghalaya.
- Lusai** : Tribals of Tripura and Mizoram.
- Nagas** : Tribals of Nagaland.
- Moplahs** : Muslims of the Malabar district of Kerala.
- Santhals** : Tribals living in West Bengal, Bihar and Orissa.
- Todas** : Tribals of the Nilgiri Hills in Tamil Nadu.
- Chenchus** : Andhra Pradesh and Orissa.

Lepchas	: Sikkim
Kol	: Madhya Pradesh
Khonds	: Orissa
Apatamis	: Arunachal Pradesh
Baigas	: Nilgiri Hills in Tamil Nadu.
Baiga	: Madhya Pradesh
Bhotias	: Garhwal and Kumaon regions of U.P.
Gaddis	: Himachal Pradesh
Warlis	: Maharashtra
Uralis	: Kerala
Shompens	: Andaman and Nicobar Islands.
Sentinelese	: Sentinel Island, Andman, and Nicobar Islands.
Kotas	: Nilgiri Hills (Tamil Nadu),
Kuki	: Manipur.
Oraons	: (also called Kurukh): Bihar and Orissa.
Jarawas	: Little Andamans.
Murias	: Bastar region in Madhya Pradesh.
Mikirs	: Assam
Mundas	: Bihar
Khas	: Jaunsar - Babar area in UP.

In addition, there are the Sema, Lotha, Rengma, Sangtam, Chang, phom, Mompa, Nishi and Wacho tribes in the north-east; the Kharia, Sabra, Bhuia, Birhor and Katkari tribes in central India and the Kanikar, Irula and Yurva tribes in the South.

## Racial Groups in India

Anthropologists divide Indians into Six racial groups:

**Negritos** : They are believed to be the oldest inhabitants but are now almost extinct, found only in small numbers in Andaman and Nicobar Islands.

**Proto -Australoids** : It includes the tribal people of central and Southern India.

**Mongoloids** : It includes the inhabitants of the mountainous zone in the North Eastern parts of the country.

**Mediterranean** : This group is divided into *Paleo - Mediterranean* inhabiting the Southern parts (Tamil Nadu, Kerala, Andhra Pradesh and

Karnataka). *Paleo - Mediterranean* are also called *Dravidians*. The other type of this group known as *True Mediterranean* or *European type* are inhabiting the northern and western parts (Punjab, U.P. and Rajasthan).

**Western Brachycephals** : Include the people of West Bengal Orissa, Gujarat and parts of Maharashtra, Karnataka and Tamil Nadu.

**Nordics or Indo - Aryan** : Inhabit parts of Northern India (Jammu and Kashmir, Western Rajasthan and Upper Gangetic valley region

## Languages in India

The Indian languages may be classified into four major groups:

(i) **Aryan Language (Indo-European)**: Account for 73% of population. Two main branches are - Dardic and Indo - Aryan. Dardic includes mainly Kashmiri. Indo - Aryan group includes Sanskrit, Sindhi, Marathi, Konkani, Bengali, Assamese, Oriya, Bhojpuri, Hindi, Punjabi, Rajasthani, Gujarati, Pahan and Nepali.

(ii) **Dravidian Language** : Account for 20% of the population. Main languages- Tamil, Malayalam, Kannada and Telugu. The Dravidian group is the least dispersed among the four families.

(iii) **Sino - Tibetan Languages (Kirata)** : Account for 0.85% of the population. Spread throughout the Himalayan ranges and include Tibetan, Lepcha, Bhutia, Naga, Manipuri etc.

(iv) **Austro - Asiatic Languages**: Minor language group in India Represented by two branches *Munda* or *Kol Language* is spoken by the hill tribes in Bihar, Orissa and Central India and the other branch *Monkmer language* is spoken in North - eastern India and Andaman and Nicobar Islands.

The Constitution of India, however, recognises only 18 languages.

## Religions of India

Almost all recognised religions have their adherents in India which is one of the chief

reasons behind its phirialistic character. The major religious communities of India are the Hindus, Muslims, Christians, Sikhs, Buddhists, Jains and Zorostrains. Hindus form the overwhelming majority (82.63%). Muslims form the second biggest community of India (11.36%), Christians form the third biggest community (2.43%), Sikhs (1.96%) are concentrated largely in the Punjab. Buddhists form only 0.71%. Maharashtra accounts for over 85% of the Buddhists. In Arunachal Pradesh 13% of the population are Buddhists. Jains form (0.48%) of the total population and are spread largely in Maharashtra, Rajasthan and Gujarat. Zoroastrians are concentrated in Bombay.

### Urbanisation in India

The census of India identifies a settlement as being urban if it satisfies the following conditions.

- (i) More than 5,000 population
- (ii) Density of over 400 persons per sq. km.
- (iii) At least 75% of the male working population engaged in non - agncultural occupations.

Urban areas having population of more than one lakh are called cities. Cities with a population of more than one million are called metropolises. Metropolitan cities generally consist of people from different states. Cosmopolitan cities are those where persons of different nationalities reside. The metropolitan cities of India include:

- |                   |                     |
|-------------------|---------------------|
| 1. Greater Bombay | 2. Greater Calcutta |
| 3. Delhi          | 4. Madras           |
| 5. Hyderabad      | 6. Ahmedabad        |
| 7. Kanpur         | 8. Pune             |
| 9. Nagpur         | 10. Bangalore       |
| 11. Lucknow       | 12. Jaipur          |
| 13. Surat         | 14. Kochi           |
| 15. Coimbatore    | 16. Vadodra         |
| 17. Indore        | 18. Patna           |
| 19. Madurai       | 20. Bhopal          |
| 21. Visakhapatnam | 22. Varanasi        |
| 23. Ludhiana      |                     |

**Trend of Urban Growth Rate :** According

to the census of 1991, the rate of urban population growth slowed down to 3.09% per annum 1981-91 compared to 3.83% in 1971-81. The urban headcount now is 217.2 million and is 25.7% of the total population in the country.

The level of urbanisation varies sharply across the major states. Maharashtra remains most urbanized state with 38.73% of its population living in urban areas, followed by Gujarat, Tamil Nadu, Karnataka, Punjab, West Bengal, Andhra Pradesh and Kerala.

### Glossary

**Ablation :** Loss of ice in the body of glacier through melting, etc

**Abrasion :** Erosion of rocks by water, wind or ice (glacier) :

**Absolute humidity :** Amount of water vapour present in a unit volume of air; usually expressed as grammes per cubic metre.

**Abyssal :** Lowest depths of oceans.

**Acid rain:** Precipitation, with a pH value 5.6 or lower, charged with an excessive amount of acid droplets, formed particularly when oxides of sulphur and of nitrogen released by combustion especially by the burning of hydrocarbons are converted to acids in the atmosphere. Such precipitation may make over acidic soils that already acidic (Acid-Soil), wash Aluminium and other metals out of the ground, thereby pollute rivers and lakes, and cause great damage to chemical process.

**Adiabatic :** This term refers to changes taking place in the pressure and temperature of a gas, (air for example,) when heat is neither added nor taken from it. Adiabatic cooling refers to fall in temperature of air when it is rising upwards. Likewise when descending, the air is adiabatically warmed up. This cooling and warming is a result of uplift or descent of air. The adiabatic rate is different from the lapse rate which refers to fall in the temperature of air which is stable, that is, in the latter case air neither ascends nor

descends but temperature is measured at varying heights within a stable air column. Adiabatic rate varies according to the moisture content of air. Dry air cools comparatively more rapidly when subjected to uplift than does wet or saturated air.

**Advection :** Transfer of heat through horizontal movement of air.

**Aeolian :** Relating to or caused by wind, for example, aeolian landforms.

**Air mass :** A mass of air, more or less homogeneous in character, in terms of temperature, pressure and humidity conditions. It develops generally over large surface areas having almost uniform characteristics in terms of temperature, pressure and humidity conditions.

**Air stability and instability :** Tendency of air in a particular region to rise upwards or to stay where it is. If the temperature of a given parcel of air is higher than the temperature of surrounding air, it tends to rise upwards and this condition is called instability. On the other hand, an air parcel with a temperature lower than or equal to that of the surrounding air tends to descend or stay at its original position. This is called air stability and the concerned parcel of air is called stable air.

**Alluvium :** The fine debris transported and deposited by a river. Landforms formed by deposition of such material are called alluvial landforms, for example, alluvial plains. Soils formed through river deposition are called alluvial soils.

**Altimeter :** A type of aneroid barometer for measuring height, used mainly in aeroplanes.

**Anemometer :** An instrument used for measuring wind velocity.

**Anticline :** The arch or crest of a fold in the rocks. Its opposite is a syncline, the bottom of a fold.

**Antipodes :** Two points diametrically opposite each other on the surface of the earth.

**Aphelion :** The position of the earth in its orbit when it is at its greatest distance from the sun. At its nearest distance from the sun the earth is said to be in perihelion.

**Apogee :** The position of the moon or any other heavenly body when it is at its greatest distance from the earth. At its shortest distance from the earth the moon is said to be in perigee.

**Asteroids or planetoids :** Minor planets revolving around the sun between the orbits of Mars and Jupiter.

**Atmosphere :** The envelope of air surrounding the earth. The most abundant among its constituents are nitrogen and oxygen.

**Atoll :** A ring- or horseshoe-shaped coral reef.

**Attrition :** Mutual wearing down of rock particles during transportation by wind, water or ice.

**Aurora Australis and Borealis :** The light phenomena seen in the sky at night in the higher latitudes of the southern and northern hemisphere respectively. Aurora comprises an electrical discharge and is usually accompanied by a magnetic storm.

**Avalanche :** A large mass of snow and ice at high altitude, sliding downslope on a mountain. Usually a large amount of rock material is also involved in an avalanche.

**Azonal Soil :** Soil which has not been subjected sufficiently to soil forming processes and thus has changed little from the parent material. Such soils do not have a mature profile.

**Abiotic :** The non-living factors which influence an ecosystem, e.g. the geology, are termed the abiotic factors.

**Abney-level :** A simple, lightweight surveying instrument for measuring slope angle (angle of inclination), where no great accuracy is required.

**Absolute humidity (vapour concentration) :** The amount of water vapour per unit volume of air expressed in  $\text{g cm}^3$ . Sometimes it is applied to the pressure of water vapour in the atmosphere (vapour pressure). Another measure of humidity and pressure is **relative humidity**, the amount of water vapour in the air as a percentage of the amount of water vapour which the air can hold at a given temperature. It is also known as **dew-point**.

lower absolute humidity than warm air (e.g. at  $-1^{\circ}\text{C}$ , absolute humidity =  $2.2\text{ g cm}^{-3}$  compared with  $9.15\text{ g cm}^{-3}$  at  $21^{\circ}\text{C}$ ).

**Absolute temperature :** The Kelvin temperature scale based on absolute zero ( $0^{\circ}\text{K}$ ), the point at which thermal molecular motion ceases (Kelvin scale). Used in meteorology to express upper-air temperatures.  $0^{\circ}\text{K}$  corresponds to  $-273.15^{\circ}\text{C}$ .

**Accordant drainage :** A term applied to a drainage pattern when it exhibits a direct relationship with the underlying geology and structure.

**Acid rocks :** Igneous rocks containing more than 10% free quartz. Acidity of rocks was once classified by the amount of silica

**Acid soil :** A base-deficient soil with a pH below 7.

**Acre :** An English unit of areal measurement. 1 acre =  $4,840\text{ sq yd}$  =  $0.4047\text{ hectares}$  (ha),  $2.4711\text{ acres} = 1\text{ ha}$ ,  $247.11\text{ acres} = 1\text{ km}^2$ .

**Actinometer :** An instrument which measures solar radiation. The corresponding term for a recording instrument is actinograph.

**Adsorption :** The linking of a particle of a particular substance to another by adhesion, or penetration. This is a physical not a chemical linkage.

**Agonic line :** A line drawn on a map along which the magnetic declination is zero, since it joins the N magnetic pole of the Earth to the S magnetic pole.

**Agro-climatology :** The study of those aspects of climate which are relevant to agricultural problems, e.g. earth temperature and accumulated temperature data

**Agronomy :** The branch of agriculture that deals with the theory and practice of crop production and the scientific management of soils.

**Albedo :** The reflection coefficient or reflectivity of an object. It refers to the ratio between the total solar electromagnetic radiation (short wavelengths,  $0.15\text{--}3.0\text{ mm}$ ) falling upon a surface and the amount reflected, expressed as a decimal or percentage. The average albedo of

the Earth is 0.34 (34%), but varies according to the colour and texture of the surface. Fresh snow has an albedo of 0.85 (85%); dark soil 0.03 (3%); grass about 0.25 (25%); forest 0.05-0.10 (5-10%); concrete 0.17-0.27 (17-27%). The albedo of water varies from 0.7 (70%) with a low sun on a rough sea to 0.05 (5%) with a high sun over a calm sea.

**Alkaline soils :** Soils which exhibit a pH of 7.0 or more. They are especially common in arid areas

**Anabatic wind :** An upslope wind formed when air on hill-sides is heated by insolation conduction to a greater extent than air at the same horizontal level but vertically above the valley floor. This causes convectional rising of the heated air, which is replaced by cooler air from the valley floor

**Aphotic zone :** A zone below 300 m depth in very deep lakes and oceans into which light does not penetrate and where photosynthesis is therefore impossible.

**Apogean tides :** A tidal effect when the Moon is at its apogee and when its lunar attraction is decreased. The resulting low tides are higher and the high tides are lower, with an accompanying reduction in the tidal range.

**Aquiclude :** A hydrological expression denoting a rock layer of low permeability.

**Aquifer :** A rock layer which will absorb water and allow it to pass freely through. The term is also applied to any water saturated stratum of earth or gravel that has sufficient porosity and permeability to yield ample supplies of groundwater in the form of wells or springs.

**Arch :** A natural opening through a mass of rock or boulder clay.

**Artesian basin :** A structural basin of sedimentary rocks in the crust which produces a constant supply of water that rises to the ground surface, by means of an artesian well, from the subterranean aquifer.

**Badlands :** A term originally used to describe part of South Dakota, USA, which was a

terrain difficult to traverse. It is now used universally to describe any landscape characterized by deep dissection, ravines, gullies and sharp-edged ridges which have been created by fluvial erosion in rocks of relatively low resistance occurring in a semi-arid environment.

**Bahada** : A term derived from Spanish used to describe the gentle, sloping surface leading down from a mountain front to an inland basin, in an arid or semi-arid region.

**Basic lava** : A flow of molten igneous material from a fissure eruption or a central vent of a volcano, in which the silica content is low and the ferromagnesian elements are high (basalt).

**Basic rocks** : Quartz-free igneous rocks containing feldspar which is more calcic than sodic. They were originally defined by the amount of silica.

**Blood-rain** : Raindrops which contain fine red dust, brought by upper winds from neighbouring deserts (e.g. Sahara dust often causes blood-rain over Italy.)

**Boreal** : A climatic zone characterized by long, cold, snowy winters and short summers.

**Barometer** : Instrument used for measuring pressure. A self-recording barometer giving a continuous record of pressure conditions in the form of a line graph is called a barograph and the graph thus provided is called a barogram.

Geological Time Scale		Period m. yrs.	Features
Indian	European		
	Quaternary		
	Holocene or Recent		Newer alluvium
	Pleistocene	1.5	Indo Gangatic alluvium & Karewas of Kashmir
	Tertiary		
	Mio-Pliocene	10	Siwalik, Cudalore sandstones, Warklay beds
	Oligo-Miocene	35	Nari & Gaj Series.
	Eocene	55	Ranikot & Kirthar Series.
	Lower Eocene-Upper Cretaceous		Deccan trap.
	Cretaceous	130	Cretaceous part of Central Him., Assam & Narmada valley.
Yan	Jurassic	185	Upper Gondwana (Spiti shales); Jurassic part of Him
	Triassic	230	Middle Gondwanas; Triassic part of Himalayas
	Permian	265	Lower Gondwanas(Damuda series); Permian Range of Him.
	Permo- Carboniferous		Telchir series; Gondwanas of Himalaya
	Middle to lower Carboniferous	355	Carboniferous range of spiti & Kashmir
	Devonian	413	Muth Series; Devonian range of Chitral
	Silurian	425	Silurian range of spiti & Kashmir.
	Ordovician	475	Ordovician range of spiti & Kashmir.
	Cambrian	570	Upper Vindhyan; Cambrian of spiti & Kashmir; Harmana system of central Himalayas.
	Purana Upper Precambrian		Lower Vindhyan, Cuddapahs, Delhi; Dogra & Simla States.
Archaean Lower Precambrian			Dharwar, Aravalli; Iron-I Group; Salkhala and Daling Series; Shillong Series; Peninsular Gneisses; Granites.



**Barysphere, Bathysphere, or Centrosphere** : Inner portion of the earth below the lithosphere or outer crust.

**Base level** : The lowest level to which a river can deepen its valley. It is the level of the surface of the water body, a lake or sea, in which the stream finally falls.

**Beach** : A gently sloping strip of land along the coast. This lies between the high and low tide levels and is formed by the action of waves.

**Bearing** : The horizontal angle between the direction of an object and the meridian through the observer, measured in degrees (zero to 360) clockwise from the true north.

**Beaufort scale** : A scale identifying wind strength. The lowest point on the scale is zero which refers to calm conditions and the highest is 12 referring to a hurricane.

**Biogeography** : Study of geographical distribution of plants and animals

**Biome**: Any major ecological community of organism, both plant and animal, usually characterized by the dominant vegetation type, for example Tundra biomes, Tropical Rain Forest biomes, etc. Biomes are defined in terms of the entire community of living organisms and of their relationships with their immediate environment (and not only with the botanical habitat). Biomes extend over large areas and broadly correspond with climatic regions. Characteristic biomes have been identified for all the major climatic regions, emphasising the ability of living organisms to adapt to a wide variety of environments.

**Biosphere**: That part of the earth's surface and its immediate atmosphere that is inhabited by living organisms. The biosphere fulfills three primary functions for plants and animals:

- (a) it provides a stable habitat within which an individual organism can complete its life cycle;
- (b) it provides a stable habitat within which the evolution of species can occur;
- (c) it forms a self-regenerating system in which energy is provided by the sun and the

materials essential for life are recycled from within the system.

The biosphere represents a complex series of inter-relationships between the soil, rock, water and air and the living organisms contained therein. Within the biosphere can be found myriads of different ecosystems. Each ecosystem inter-relates with its neighbour; a change in one ecosystem creates a ripple effect bringing change to adjacent systems.

**Bird's foot delta**: A delta with distributaries flanked by relatively narrow borders of sediments, projecting seawards in the pattern of a bird's foot. e.g. the Mississippi delta.

**Blind valley**: A valley in limestone country, dry or with a stream, which ends in a steep wall into the base of which the surface flow of water disappears underground.

**Biosphere Reserve**: Any terrestrial or coastal environment that has been internationally recognized as an area for Conservation study and sustained development (as distinct from exploitative development). Biosphere reserves form an international network of protected areas approved by the International Coordinating Council of UNESCO'S Man And The Atmosphere Programme. In conjunction with the Convention On International Trade In Endangered Species, a total of 194 different biogeographical provinces have been identified and for each of which at least one biosphere reserve is considered necessary. By December 1985, 243 biosphere reserves had been established in 65 different countries and covering 100 of the biogeographical provinces. Marine provinces, however, are poorly represented.

Each reserve must contain an ecosystem that is typical of a biogeographical realm in terms of its naturalness, diversity and effectiveness as a conservation unit. Each reserve must exhibit minimal disturbance. Within each reserve at least one *core area* must exist within which no interference with the natural ecosystems is permitted. Surrounding the core area there is a *transition zone*

within which experimental research is permitted and beyond this lies a buffer zone which protects the whole biosphere reserve from agricultural, industrial, and urban land use pressures.

**Blizzard** : A storm of powdery snow in the polar regions.

**Bog** : An area of soft, wet, spongy ground consisting mainly of decayed or decaying mass and other vegetable matter.

**Bora** : A cold and often dry wind experienced along the eastern coast of the Adriatic sea.

**Bore** : A high tidal wave causing back flow of water in a river.

**Caatinga** : Thorn-forest of Brazil.

**Canyon** : A narrow, deep, steep-sided river valley cut in the soft rocks.

**Cape** : A headland, a more or less pointed piece of land jutting out into the sea.

**Cardinal points** : The four main directions or points of the compass-north, south, east and west.

**Chaparral**: The evergreen, Sclerophyllous vegetation of the lower flanks of the Coastal and Santa Lucia ranges of southern California. It is usually known as *coastal chaparral* and has strong similarities with Maquis. The vegetation shows numerous adaptations to the long summer drought. Annual rainfall may be less than 380 mm, and in the driest areas the chaparral vegetation rarely exceeds 3 m in height. In damper areas where rainfall may reach 1000 mm per annum the Chaparral becomes dominated by evergreen oaks, typically *Quercus agrifolia*, which may attain 20 m in height. The floral diversity is considerable with a wide variety of minor species. *Chaparral* species are notably resistant to fire damage, being able to produce vigorous new shoots from damage, being able to produce vigorous new shoots from underground foot systems. Many areas of the Californian *chaparral* are now under commercial development for irrigated agriculture.

**Cartography** : The art of drawing maps and charts.

**Celestial equator** : The imaginary circle formed by the intersection of a plane through the centre of the earth perpendicular to its axis and the celestial sphere.

**Celestial sphere** : A sphere of infinite radius having its centre at some point in the solar system, for example, at the centre of the earth, on to which all members of the solar system may be projected.

**Chronometer** : An accurate time-keeping instrument.

**Cirque**: A step-walled amphitheatre, or basin of glacial origin at the head of a mountain valley (in some cases containing a small lake), resulting from frost and glacial action (Nivation, Rotational Slip). At the meeting of two cirques a knife edge or Arete is formed.

**Climate** : The average weather conditions of a place or region throughout the seasons

**Climatology** : The science studying climates and their influence on other components of the environment.

### The Earth in Figures

Age	4,550 million years
Mass	$5.976 \times 10^{24}$ kg.
Volume	$1.083 \times 10^{14}$ litres
Mean density	5.518 kg/litre
Total Surface Area	510,000,000 km <sup>2</sup>
Land Area	29.2% of the total surface area.
Water Area	70.8% of the total surface area
Highest land point (Mt. Everest)	8,848 m
Lowest land point (Dead sea)	397 m.
Greatest Ocean Depth (Mariana Trench)	11,033 m
Mean Equatorial Diameter	12,756 km.
Equatorial circumference	40,076 km.
Mean Surface temperature	14 °C
Maximum distance from the sun (At Aphelion between July 2nd and July 5)	About 152 million km
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**Clinometer** : An instrument used for determining the difference in elevation between two points.

**Cloud** : A mass of tiny water droplets or ice crystals formed by condensation of water vapour in the atmosphere.

**Condensation** : The process by which a substance changes from vapour to liquid.

**Condensation nuclei** : Microscopic particles having an affinity for water - these serve as the nuclei for the formation of raindrops. The presence of these particles in the atmosphere is necessary for condensation to occur.

**Coniferous** : Cone-bearing plants with needle-shaped leaves.

**Connate water** : Water entrapped in the interstices of rocks during their formation; also called fossil water.

**Convection** : The uplift of air as a result of surface heating or instability due to other reasons. Generally this term refers to vertical movement of gases in contrast to advection.

**Convection currents** : Due to instability in air some vertical motions in the atmosphere are set up which are more or less in the form of currents.

**Coral** : A kind of rock formed of polyps forming reefs in the oceans.

**Colour of the sky** : Seems blue because of the selective scattering of light in the atmosphere by gases and dust particles.

**Cold front** : The boundary between a warm air mass which is being undercut by an advancing cold air mass. This usually occurs at the rear of the warm sector in a depression. The gradient of a cold front is steeper than that of a warm front. The rapid upward movement of moist air along the cold front results in condensation and the formation of Cumulo-nimbus cloud. Short, heavy rain showers are associated with the passage of a cold front which also causes a drop in temperature, a rise in air pressure, and the wind to veer from south westerly to northwesterly in the northern hemisphere and vice-versa in the southern

hemisphere.

**Cainozoic (Cenozoic, Kainozoic)** : A Greek term meaning 'recent life', adapted to describe the third of the eras of geological time. Originally, the term was regarded as being synonymous with the Tertiary, i.e. succeeding the Mesozoic and finishing at the Quaternary.

**Catchment area** : In British usage the term refers to the total area from which a single river collects surface runoff. In the USA the term watershed is used in this context, and the term catchment area is reserved to describe both the intake area and all areas which contribute surface water to the intake area of an aquifer.

**Chelation** : The process by which rocks and soils decompose or disintegrate through the action of organisms or organic substances.

**Cheluviation** : A term derived from the combination of chelation and eluviation, whereby water containing organic extracts combines with metallic actions in the soil to form a chelate. This sesquioxide-rich solution then moves downward through the soil profile (hence eluviation) and moves the aluminium and iron into the lower horizons.

**Chemical weathering** : The processes which lead to the decomposition or breakdown of solid rocks by means of chemical reactions. These comprise carbonation, hydrolysis, oxidation, reduction and solution.

**Chestnut soil** : A pedocal found on the steppes of the USSR, the pampas of Argentina, the Great Plains of USA and the S African veld, but in drier environments than those of the chernozem.

**Cloud-seeding** : A term used in the experimental procedure of artificial rain-making. It is based on the principles outlined in the Bergeron-Findeisen theory of precipitation in which clouds containing super cooled water droplets are 'seeded' artificially with freezing nuclei, such as silver iodide or dry ice, thus promoting the growth of ice crystals alongside supercooled droplets and encouraging vapour fluxes/precipitation.

**Continental drift** : A concept, initiated in 1912 by A. Snider but developed and popularised by F. B. Taylor (1908) and A. Wegener (1915), which suggested that continents can move around Earth's surface because of the weakness of the suboceanic crust. Although it was originally

based on the apparent 'jig-saw' fit of the opposing coasts of the Atlantic Ocean, much evidence of matching fossils, geological structures, etc. was accumulated to support the former movements, although no adequate mechanism were advocated. It was suggested by Wegener that the world's

### India : Vital Statistics - 1991

States	Density	Literacy	Population(%)	Area(Sq. km)	Sex ratio
West Bengal	767	57.70	68077965 (8.04)	88752	917
Kerala	749	89.81	29098518 (3.44)	38863	1040
Bihar	497	38.48	86374465 (10.21)	173877	912
Uttar Pradesh	473	41.60	139112287 (16.44)	294411	879
Tamilnadu	429	62.66	55858946 (6.60)	130058	972
Punjab	403	58.51	20281969 (2.40)	50362	888
Haryana	372	55.85	16463648 (1.94)	44212	865
Goa	316	75.51	1169793 (0.14)	3702	969
Assam	286	52.89	22414322 (2.65)	78438	925
Tripura	263	60.44	2757205 (0.33)	10486	946
Maharashtra	257	64.87	78937187 (9.33)	307690	936
Andhra Pradesh	242	44.09	66508008 (7.86)	275068	972
Gujarat	211	61.29	41309582 (4.88)	196024	936
Karnataka	235	56.04	44977201 (5.31)	191791	960
Orissa	203	49.09	31659736 (3.74)	155707	972
Madhya Pradesh	149	44.20	66181170 (7.82)	443446	931
Rajasthan	129	38.55	44005999 (5.20)	342239	913
Himachal Pradesh	93	63.86	5170877 (0.61)	55673	976
Manipur	82	59.89	1837149 (0.22)	22327	961
Meghalaya	79	49.10	1774778 (0.21)	22429	947
Jammu and Kashmir	-	-	7718700 (0.91)	222236	923
Nagaland	73	61.65	1209546 (0.14)	16579	890
Sikkim	57	56.94	406457 (0.05)	7096	880
Mizoram	33	82.27	689756 (0.08)	21081	924
Arunachal Pradesh	10	41.59	864558 (0.10)	83743	861
<b>Union Territories</b>					
Delhi	6,352	75.29	9420644 (1.11)	1483	839
Chandigarh	5,632	77.81	642015 (0.08)	114	793
Lakshadweep	1,616	81.78	51707 (0.01)	32	944
Daman and Diu	907	71.20	101586 (0.01)	491	953
Nagar Haveli	282	40.71	138477 (0.02)	112	972
Andaman and Nicobar	34	73.02	280651 (0.03)	8249	820
Pondicherry	1642	74.74	807785 (0.09)	492	982
India	274	52.21	846302688	3287263	927

continents had been derived from the breakup of the two supercontinents of Gondwanaland and Laurasia, which had themselves been united as Pangaea in pre-Mesozoic times. The entire concept has been replaced by the more sophisticated hypothesis of plate tectonics.

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**Desiccation :** (1) The removal of silica from a soil, generally by leaching of the surface material in regions of heavy rainfall. (2) The term is also used to denote the removal of silica either from rocks by the mere weathering, or hot humid climates or from a magma by reaction with the debris left (e.g. a basaltic lava would form a desiccated crust).

**Diabatic lapse rate (d.a.l.r.) :** A measure used to describe the change of temperature with height. When a column of unsaturated air rises through the atmosphere it cools down & expands. On every 100 m of a constant rate, termed the dry adiabatic lapse rate, which is 1°C for 100 m (5.4°F in 1000 ft) or 3000 ft.

**Dust bowl :** A semi-arid region in the S.W. plains of the USA (Texas to Kansas) that lost most of its surface soil by wind removal.

**Eclipse :** Partial or full obscuration of the moon when the earth comes between the sun and the moon is called *lunar eclipse*. It occurs usually on the day of the full moon. A partial or complete obscuration of the sun because of the presence of the moon between the sun and the earth is called the *solar eclipse* and it occurs on the day of the new moon, that is, on the day the moon is not visible.

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**Edaphic :** Relating to soil.

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**Epicentre :** Point on the surface of the earth vertically above the seismic focus or deep focus, that is, the point where an earth quake originates.

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**Eustatic movement** : A large scale rise or fall of sea level.

**Evapotranspiration** : The term signifies total loss of water (moisture) from soil in the form of water vapour, including that loss by evaporation from open water bodies, the surface of rocks, and also that loss by transpiration from growing plants.

**El Nino** : A name given to the occasional development of a warm ocean current along the coast of Peru as a temporary replacement of the cold Peru current (Humboldt current) which normally operates. El Nino is an extension of the Equatorial current and leads to an increase in surface-water temperatures of 10°C and a decrease in plankton which thrive in the colder current. As a result of this reduction in their food supply the fish population is seriously depleted. It recurs every seven to fourteen years and results from a weakening of the SE Trades in the Pacific.

**Euphotic zone** : The surface layer of any body of water through which light can penetrate, thereby leading to photosynthesis.

**Fathometer** : Instrument used for measuring the depth of the ocean.

**Fauna** : The animal life of a region or an ecological period.

**Fiord** : A glacial valley or part there of now under the sea.

**Flood-Plain** : A plain bordering a river and formed by river deposition.

**Flora** : The plant life of a region or geological period.

**Fluvial** : Belonging or relating to a river.

**Fog** : A dense mass of small water drops or smoke or dust particles in the lower layers of the atmosphere.

**Front** : The line of separation at the earth's surface between cold and warm air masses. Like the air masses, the fronts can also be cold and warm.

**Flord (fjord)** : A long, narrow inlet of the sea bounded by steep mountain slopes, which are of great height and extend to

considerable depths (in excess of 1,100 m) below sea-level. It is formed by the submergence of glacially overdeepened valleys (trough) due to rising sea-level after the melting of the Pleistocene ice-sheets.

**Flash-flood** : A short-lived but rapid rise of water in a river due to heavy rainfall, the collapse of an ice-dam, log-jam or artificial dam. Because of the considerable velocity and discharge achieved in such a short time period the river becomes capable of transporting an exceptionally large load, often with catastrophic consequences (e.g. Lynmouth, N. Devon, floods in 1952; the Dolgarrog dam collapse, N. Wales, in (1925). Flash-floods sometimes occur in semi-arid areas where violent thunderstorms can turn dry gullies, wadis, etc. into raging torrents in a short space of time.

**Frontogenesis** : The process by which two air masses of different physical characteristics are brought together (horizontal confluence and/or convergence at a frontal zone), thus setting in motion the meteorological mechanisms which lead ultimately to the formation of a depression with its own frontal systems.

**Frontolysis** : The gradual break-up or dissipation of a front or frontal zone. This is the antithesis of frontogenesis, and is effected mainly by horizontal divergence of air from the frontal zone, together with subsidence.

**Geosyncline** : A large depression or trough in the earth's crust, that is a syncline on a large scale.

Continents, Area, Highest and Lowest Point			
Name	% Area*	Highest Point	Lowest Point
Asia	29.5	Mt. Everest	Dead Sea
Africa	20.0	Kilimanjaro	Dake Sea
North Africa	16.3	Mckinley	Death Valley
South America	11.8	Aconcagua	Valdes Penin
Europe	6.5	Elbrus	Caspian sea
Australia	5.2	Kosciusko	Lake eyre
Antarctica	9.6	Vinson Massif	—
*% of the Earth's Surface Area			



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**Eustatic movement** : A large scale rise or fall of sea level.

**Evapotranspiration** : The term signifies total loss of water (moisture) from soil in the form of water vapour, including that loss by evaporation from open water bodies, the surface of rocks, and also that loss by transpiration from growing plants.

**El Nino** : A name given to the occasional development of a warm ocean current along the coast of Peru as a temporary replacement of the cold Peru current (Humboldt current) which normally operates. El Nino is an extension of the Equatorial current and leads to an increase in surface-water temperatures of 10°C and a decrease in plankton which thrive in the colder current. As a result of this reduction in their food supply the fish population is seriously depleted. It recurs every seven to fourteen years and results from a weakening of the SE Trades in the Pacific.

**Euphotic zone** : The surface layer of any body of water through which light can penetrate, thereby leading to photosynthesis.

**Fathometer** : Instrument used for measuring the depth of the ocean.

**Fauna** : The animal life of a region or an ecological period.

**Fiord** : A glacial valley or part there of now under the sea.

**Flood-Plain** : A plain bordering a river and formed by river deposition.

**Flora** : The plant life of a region or geological period.

**Fluvial** : Belonging or relating to a river.

**Fog** : A dense mass of small water drops or smoke or dust particles in the lower layers of the atmosphere.

**Front** : The line of separation at the earth's surface between cold and warm air masses. Like the air masses, the fronts can also be cold and warm.

**Flord (fjord)** : A long, narrow inlet of the sea bounded by steep mountain slopes, which are of great height and extend to

considerable depths (in excess of 1,100 m) below sea-level. It is formed by the submergence of glacially overdeepened valleys (trough) due to rising sea-level after the melting of the Pleistocene ice-sheets.

**Flash-flood** : A short-lived but rapid rise of water in a river due to heavy rainfall, the collapse of an ice-dam, log-jam or artificial dam. Because of the considerable velocity and discharge achieved in such a short time period the river becomes capable of transporting an exceptionally large load, often with catastrophic consequences (e.g. Lynmouth, N. Devon, floods in 1952; the Dolgarrog dam collapse, N. Wales, in (1925). Flash-floods sometimes occur in semi-arid areas where violent thunderstorms can turn dry gullies, wadis, etc. into raging torrents in a short space of time.

**Frontogenesis** : The process by which two air masses of different physical characteristics are brought together (horizontal confluence and/or convergence at a frontal zone), thus setting in motion the meteorological mechanisms which lead ultimately to the formation of a depression with its own frontal systems.

**Frontolysis** : The gradual break-up or dissipation of a front or frontal zone. This is the antithesis of frontogenesis, and is effected mainly by horizontal divergence of air from the frontal zone, together with subsidence.

**Geosyncline** : A large depression or trough in the earth's crust, that is a syncline on a large scale.

#### Continents, Area, Highest and Lowest Point

Name	% Area*	Highest Point	Lowest Point
Asia	29.5	Mt. Everest	Dead Sea
Africa	20.0	Kilimanjaro	Dake Sea
North Africa	16.3	McKinley	Death Valley
South America	11.8	Aconcagua	Valdes Sea
Europe	6.5	Elbrus	Caspian Sea
Australia	5.2	Kosciuszko	Lesser Sea
Antarctica	9.5	Vinson Mass	
*% of the Earth's Surface Area			

**Geyser** : A thermal spring which throws up a jet of hot water and steam intermittently.

**Glacier** : A moving mass of ice.

**Gorge** : A narrow and deep valley of a river.

**Great circle** : A circle on the earth's surface whose plane passes through its centre and thus bisects it into two hemispheres.

**Great circle route** : A route between any two points on the earth's surface which follows the great circle between them.

**Greenhouse effect (atmospheric effect)** : An expression referring to the ability of glass to allow incoming short-wave solar radiation to pass easily into a greenhouse, but which blocks some of the reradiated outgoing long-wave terrestrial radiation. The process has been used to describe how short-wave radiation passes easily through the atmosphere to reach the Earth's surface whereas outgoing radiation is absorbed and reradiated by water vapour, droplets and carbon dioxide. It has been shown, however, that since higher temperatures in a greenhouse are due partly to decreased turbulence the analogy is largely erroneous. Nevertheless, it is known that the Earth and the atmosphere retain some of the heat and it has been argued by some environmentalists that by continuing to pollute the atmosphere, largely by releasing carbon dioxide after combustion of fossil fuels, modern man is building an increasingly effective greenhouse effect which will affect global temperatures. For example, since 1990 fossil fuel combustion has raised the atmospheric carbon dioxide by 10%, thereby increasing global temperature by 0.2°C. The current annual increase of carbon dioxide is 0.4%.

**Greenwich meridian** : The standard meridian through which the 0° line of longitude runs and from which degrees of longitude E or W are calculated. It is measured from the old Royal Observatory at Greenwich, England. Other prime meridians in France and USA have never been universally accepted (167).

**Halophyte** : A plant which grows naturally in saline environment.

**Habitat** : Natural environment of a plant or animal.

**Hemisphere** : One half of the earth's surface, formed when a plane passing through its centre bisects it.

**Hinterland** : Area from which a port gets most of its exports.

**Horse latitudes** : Subtropical and of high pressure over the oceans.

**Humidity** : State of the atmosphere with respect to the water vapour it contains.

**Humus** : Decomposed and partly decomposed organic matter in the soil.

**Hydrology** : Science studying water in the earth atmosphere system.

**Hyetograph** : A self-recording rain-gauge.

**Hygrometer** : Instrument used for measuring humidity in the atmosphere.

**Hygrophyte** : Plant growing in very wet areas.

**Hamada (hammada)** : An Arabic term for a very flat bare-rock plateau in the desert.

**Horst** : A fault-defined block which has been left upstanding by the sinking of the adjoining land along normal faults or has been uplifted along parallel faults. Although it coincides with prominent relief form at its inception, the topography may be denuded to leave only the structural formation.

**Hurricane** : A name of Spanish derivation which refers primarily to the revolving tropical storms of the Caribbean and Gulf of Mexico.

**Hydration** : One of the major processes of mechanical weathering, involving the addition of water to a mineral, causing it to expand and thereby initiate stress within the rock.

**Hydraulic action** : The force exerted by moving water on rocks without recourse to the use of its load.

**Hydrological cycle** : The cycle of water movement through the Earth-atmosphere system, initiated through the acquisition of water vapour by evaporation and transpiration from water and land surfaces (including vegetation), released into

the atmosphere by condensation (cloud) and deposited on land and water surfaces by precipitation. At the Earth's surface, the precipitation is stored on the surface (lakes, glaciers) or at depth as groundwater, or is evaporated or transpired (to initiate the 'next' cycle) with the balance returned to the sea through throughflow.

**Hydrometer** : An instrument devised for the measurement of the specific gravity of liquids. It consists of a graduated glass tube which, when immersed in various liquids, sinks to a particular level.

**Isobronts** : Lines joining places experiencing a thunderstorm at the same time.

**Isochrones** : Lines joining places located at equal travel time from a common centre.

**Isogonals** : Lines joining places with same magnetic declination.

**Isohalines** : Isopleths of salinity.

**Isohels** : Isopleths of equal amount of sunshine.

**Isohyet** : Isopleth of rainfall.

**Isohypse or contour lines** : Isopleths of

under certain weather conditions the converse may be true. Thus, contrary to the normal environmental lapse-rate, over a limited height range, air temperature increases with height so that a layer of warmer air overlies a colder layer. Two types may be recognized : (1) A high-altitude inversion due to frontal convergence, when a warm air mass is forced from the ground surface by the undercutting of a cold air mass at a cold front. Alternatively, a similar inversion can be created when a warm air mass overrides a colder one along a warm front. Upper-air inversions also develop in the subtropics, associated with the deep subsidence and adiabatic warming in a warm anticyclone. A surface inversion is much more localized and is often dependent on the terrain. It will frequently occur during winter anticyclonic weather when, during calm cloudless nights, there is a rapid heat loss from the ground by radiation. Because cold air will flow to a lower level owing to its greater density, temperature inversions are most marked in basins, hollows and narrow valleys. Some mountain settlements have been sited to avoid these cold 'spots, which may become frost hollows or frost pockets

**Karst region or Karstland** : Limestone region in which most of the drainage is underground, the surface being dry and barren

**Katabatic wind** : Local wind caused by the flow of air down mountain slopes and valleys.

**Lagoon** : Part of sea partially cut off from it by deposits of sand or coral reefs, for example Chilka Lake in Orissa

**Lapse rate** : The rate of change of temperature in atmosphere with height; it is said to be positive when temperature decreases with height, as it normally does, and negative when temperature increases with height, as in temperature inversion.

**Latitude** : The angular distance of a point on the earth's surface north or south of the equator, as measured from the centre of the earth. Latitudinal lines are also called parallels of latitude.

**Leaching** : The process by which soluble substances are washed out of the upper layers of the soils into lower layers by percolating rainwater.

**Leeward** : The side or direction sheltered from the wind.

**Light year** : Distance travelled by light in one year. The speed of light is 1,86,000 miles per second. The unit is used for measuring the distance of stars from the earth.

**Lithosphere** : The solid crust of the earth

**Loess** : A deposit of fine silt or dust generally held to have been transported to its present situation by wind.

**Longitude** : The angular distance measured along the equator, between the meridian through a given point and a standard or prime meridian.

**Lunar month** : The interval of time in which the moon makes one complete revolution around the earth about 29.5 days.

**Magnetic storms** : Large, irregular variations or disturbances of the earth's magnetic field.

**Meridian** : A line of longitude, or half of one of the great circle that pass through the poles and cut the equator at right angles.

**Mesophyte** : A plant that requires an average amount of moisture. Most common trees and shrubs and mesophytes.

**Mestizo** : Offspring of a European and an American Indian-the term is used mostly in South America.

**Meteors** : Small pieces in the atmosphere appearing as shooting stars.

**Midnight sun** : A phenomenon observed in high latitudes around midsummer when the sun does not sink below the horizon throughout the 24 hours of a day and night cycle and may thus be visible even at midnight.

**Monsoon** : A type of wind system in which there is a complete reversal or almost so, of prevailing wind direction from season to season.

**Moraine** : The debris of fragments of rock material brought down with the movement of glaciers.

**Mulatto** : The offspring of a White and a Negro.

**Mangrove** : (1) A vegetation type characterizing a coastal swamp of brackish or saline water, in which specially adapted trees form a dense swamp forest. (2) A term given to those tropical tree species and genera which have adapted themselves to live on saline muds in the tidal zone of certain tropical creeks and estuaries, especially in Indonesia, N. Australia, the Amazon delta and the Niger delta. They have developed a dense network of aerial roots which help to aerate the root system and anchor the tree. Rhizophora - can tolerate prolonged flooding but requires a soft substratum of fine particles; Avicennia - tolerates shorter periods of tidal flooding and prefers more sandy and less organic soils; Laguncularia - withstands only periodic immersion and prefers firm soils.

**Mercator projection** : A map projection of the cylindrical type with orthomorphic properties. It is named from G. Mercator, who used it for his world map of 1569, albeit the projection was used in 1511 by Etzlaub. Its parallels are straight lines, drawn at the same length as the equator and intersecting the meridians at right angles. It has the valuable property that its rhumb lines are straight, making its directional information (bearing) correct. Thus the Mercator projection has been used extensively for navigation purposes. Its greatest disadvantage is the increasing amount of distortion of area as high latitudes are approached, thereby depicting some of the islands of the Canadian Arctic as considerably larger than those in Indonesia. Its orthomorphic (conformal) properties are achieved by increasing the spacing of the parallels with increasing distance from the equator, to conform with the expanding scale along the parallels as they are traced polewards, but the equator is the only one that is true to scale.

**Nivation** : Erosion due to action of snow.

**Nomadism** : The practice, among certain primitive peoples of frequently changing their habitation. These people keep moving residence in

search of food and fresh pasture for animals. People following this mode of life are called nomads.

**Oasis** : Area in the desert where water is available.

**Ocean Current** : Movement of the surface water of the ocean.

**Opisometer** : Instrument used for measuring distances on a map.

**Orbit** : Path of heavenly body through space in relation to some selected point.

**Orographic rain** : Rain caused by mountains standing in the path of moisture-laden winds.

**Outwash Plain** : Alluvial plain formed by streams originating from the melting ice of a glacier.

**Pampas** : The mid-latitude grasslands of South America.

**Pastoralism** : Practice of breeding and rearing cattle. Some pastoral communities may be nomadic in their habits.

**Pedology** : The science of the study of soils.

**Peninsula** : A stretch of land almost surrounded by water.

**Perigee** : The point in the orbit of moon or a planet or in the apparent orbit of the sun, nearest to the earth.

**Perihelion** : The position of the earth in its orbit or any other heavenly body nearest to the sun.

**Permafrost** : Ground that is permanently frozen.

**Petrology** : The study of the composition, structure and history of rocks forming the crust of the earth.

**Phenology** : Science dealing with the effects of seasonal changes upon animal and plant life.

**Phytogeography** : The study of the distribution of plants on the earth in relation to environment.

**Piedmont** : Belonging to or related to the foot of a mountain.

**Planetary winds** : The general distribution

## NATIONAL NETWORK

of winds throughout the lower atmosphere which is determined, by differences in insolation and would be set up similarly on any rotating planet possessing an atmosphere.

**Planimeter** : Instrument for measuring irregular plane areas on maps.

**Plateau** : Extensive, level or mainly level area of elevated land.

**Prairies** : Mid-latitude grasslands of North America.

**Precipitation** : Falling water (in liquid or solid form, as the case may be) from the atmosphere to the earth.

**Pressure gradient** : Rate at which pressure changes horizontally on the earth's surface.

**Psychrometer** : Instrument used for measuring humidity of the atmosphere

**Population explosion** : A sudden (and usually unpredictable) rapid increase in the population size of a species. Such an increase may be due to natural events, for example, a seasonal change in climate. More commonly, however population explosions are linked to human factors, such as the introduction (accidental or deliberate) of species to geographical areas to which they had previously been absent. The best known examples are the population explosion of rabbits and prickly pear in Australia in the 19th century but many other examples exist, for example, the accidental import of the Indian balsam plant (*Impatiens glandifera*) to southern England and its subsequent explosion along river banks throughout much of England and Wales.

**Radiation** : Process by which a body emits radiant energy, for example in the form of heat.

**Rainshadow** : Area having relatively lower average rainfall because it is sheltered from the prevailing rain-bearing winds by a range of mountains or hills.

**Reef** : Ridge of rocks lying near the surface of the sea, which may be visible at low tide, but usually covered by water.

**Rejuvenation** : The process by which the erosive capacity of a river is renewed. When a

river's base level is lowered then the river will begin to regrade its profile to the new base level. During the regrading process, there is often a marked change of slope known as a knickpoint, where the newly graded profile intersects with the former. Knickpoints are often marked by waterfalls or rapids.

**Remote sensing** : The collection and analysis of scientific data about phenomena at, above or below the earth's surface and the oceans without coming into physical contact with them. Information can be gathered in a variety of ways, using conventional aerial photography, radar, or airborne electronic-scanning devices. Satellites are being increasingly used for remote sensing and a series of LANDSAT satellites were launched from 1972 onwards specifically to provide an inventory of land resources and to monitor environmental changes. Remote sensing techniques can be used to provide data on such matters as the development and movement of meteorological disturbances, the existence of certain mineral deposits and the build-up of pressure along faults and the earth's crust prior to an earthquake.

**Reg** : A sandy desert is called a reg.

**Rhumb line of loxodrome** : Line on the earth's surface which cuts all meridians at the same angle.

**Radiocarbon dating** : A method of determining the age of an organic material by measuring the proportion of the C-14 isotope contained within its carbon content. This radioactive carbon isotope enters the earth's living organisms from the atmosphere, and continues to be assimilated until the organism dies or is buried beneath sediments, at which point radioactive decay begins. The half-life of C-14 is 5,570 years, a relatively short half-life, which makes it particularly useful for dating objects or material up to c. 70,000 years, but accuracy diminishes beyond 30,000-40,000 years. The absolute age of the material is correct to  $\pm 5\%$ , having been determined by a knowledge of the initial radiocarbon concentration, its constant rate of decay, and its present proportion.

radiocarbon dating is one method of radiometric dating.

**Relative humidity** : An index of the amount of water vapour present in the atmosphere. It is the actual vapour pressure expressed as a percentage of the saturation vapour pressure which would be possible at the same air temperature. Relative humidity is an attempt to measure the readiness with which vapour will condense from the air, and is concerned with two variables the actual water vapour in a given mass of atmosphere and the temperature of that mass of air, since this determines the capacity of the air to hold the water vapour. The value of relative humidity varies inversely with temperature and therefore usually rises during the night, because temperature falls, even though the amount of water vapour may remain constant. It is measured by a hygrometer.

**Saprophyte** : A plant which lives on decaying organic matter. Most such plants are fungi.

**Satellite** : A relatively small body revolving around a planet.

**Savanna** : An area of tropical grassland with scattered trees.

**Seismic focus or deep focus** : Point below the earth's surface where an earthquake originates.

**Seismograph** : Instrument used for measuring and recording earthquake shocks.

**Seismology** : Science of the study of earthquakes.

**Selves** : Dense equatorial forests of the Amazon basin in South America.

**Sericulture** : The culture of silkworms for production of raw silk.

**Sidereal day** : The period of time during which a star describes a complete circle in its apparent journey around the pole star, representing the period of one rotation of the earth on its axis and equal to 23 hours 56 minutes 4 seconds. It is thus about 4 minutes shorter than mean solar day.

**Sleet** : Precipitation consisting of a mixture of snow and rain.

**Smog** : Fog heavily laden with smoke.

**Snow-line** : Lower limit of perpetual snow - the snow above this line does not melt completely even in summer.

**Soil erosion** : The wearing away and loss of soil mainly by the action of wind and water.

**Solar constant** : Intensity of the sun's radiation in space at the mean distance of the earth from the sun.

**Solar Day, mean** : The average period taken by the earth in making one rotation on its axis in relation to the sun - 24 hours.

**Solstice** : The time during summer or winter when the sun is vertically above the point which represents its farthest distance north or south of the equator - the two tropics.

**Steppe** : Mid-latitude grasslands of Eurasia.

**Strait** : Narrow stretch of sea connecting two extensive areas of sea.

**Sublimation** : Change of state of water from solid to vapour directly or vice versa.

**Solar energy** : Any form of energy which has its origin in the Sun (insolation), including that used in photosynthesis. It can be exploited directly by conversion to thermal, electrical or chemical energy, or by development of solar heating. Indirectly, the energy derived from winds, waves and the thermal gradient of the oceans is also derived from the Sun by the effect of insolation on the atmosphere and the oceans. Direct conversion systems include (1) solar cells, which convert directly to electricity by thermoelectric and photovoltaic means; (2) flat-plate collectors, in which a fluid, such as water, is heated; (3) focusing collectors, which concentrate direct radiation on to a small area; (4) chemical and biochemical conversion systems, which are largely at the experimental stages. It is noteworthy that although solar radiation travels through space without energy loss, the intensity of radiation within a beam of given cross-section decreases inversely as the square of the distance from the Sun. Thus the



Earth intercepts only about two billionths of the solar-energy output.

**Taiga** : Coniferous forestland of Siberia.

**Temperature inversion** : Condition when the temperature is found to be increasing instead of decreasing with height.

**Theodolite** : Instrument used for measuring angular distances in the vertical plane (elevation) and the horizontal plane (azimuth).

**Territorial waters** : Any area of sea over which an adjacent country claims jurisdiction. Under international law, territorial waters extend for 5 km from the high water mark, although in 1977 the United Nations Law of the Sea Convention designated *exclusive economic zones* of 370 km within which countries have the sole right to exploit the mineral and fish resources off their coastline.

**Thermograph** : Self-recording thermometer-an instrument for measuring temperature.

**Tidal range** : Average difference in water level between high and low tide at one place

**Topographic map** : Map on sufficiently large scale to show the detailed surface features of an area

**Tributary** : Smaller river which joins a larger river.

**Tropics** : The Tropic of Cancer and the Tropic of Capricorn located at 23 1/2° N and S, respectively, are the northward and southward limits up to which the sun's vertical rays can reach. The area bounded by the two tropics is called the tropical zone.

**Trophophyte** : A plant which acts as a hygrophyte in one season and a xerophyte in the other.

**Tsunami** : A large sea wave caused by an earthquake originating on the sea bed.

**Terra rossa** : A reddish clay-loam soil developed under a warm seasonally dry climate, on limestone, especially in the karst terrain of Yugoslavia. It is rich in iron sesquioxides and has a low base status. Although it is thought to be a residual soil there is no agreement on its exact

origin, but since it appears typically under garigue vegetation in the Mediterranean region it may possibly result from deforestation. The general lack of humus in the terra rossa would support such a possibility. It is related to the red soils, *rendzina*.

**Typhoon** : A small but intense low-pressure system of the W. Pacific and the China Sea which produces violent winds and heavy rain (tropical cyclone). Its wind speeds exceed force 12 on the Beaufort scale.

**Underpopulation** : A shortage of people in an area such that the available resources cannot be exploited to the full or to the best advantage, resulting in lower per capita real income than might be achieved under optimum population conditions. Several Third World countries claim to be underpopulated in that their small domestic market and even smaller aggregate purchasing power inhibits industrialization.

**Van Allen's Radiation Belts** : Named after the physicist who discovered them, these are two bands of the outermost layer of the atmosphere (magnetosphere), at heights of 3000 km and 16000 km above the earth's surface. Here the ionized particles trapped by the earth's magnetic field from the solar radiation, concentrate.

**Viticulture** : The culture of grape vine.

**Volcano** : Vent in the earth's crust caused by magma forcing its way to the surface through which flow molten or solid rock from the interior of the earth.

**Watershed** : Elevated boundary line separating headstreams which are tributaries to different river systems or basins.

**Weather** : Condition of the atmosphere at a certain time or over a certain period of time as described by meteorological phenomena, including temperature, atmospheric pressure and humidity.

**Weathering** : Decay and disintegration of rocks of the earth's crust by exposure to the atmosphere; it is one of the main processes of denudation.

River	Sources	Total length (Km)	Area Drained (km <sup>2</sup> )	Tributaries.
<b>Indus and its tributaries</b>				
Indus	At an altitude of 5080 mt in Tibet near Mansarovar Lake	2880 709km in India	321290	Zaskar, Astar, Dras, Shyok, Skardu, Swat, Kurram, Shigar, Gilgit, Kabul, Jhelum, Chenab, Ravi, Beas and Sutlej
Jhelum	From a mountain spur at Verinage	400 in India	28490	
Chenab	At an elevation of 4900 mt. At Lahul	1800 in India	26750	
Ravi	Kulu Hills of H.P.	725	14442	
Beas	Kulu Hills near Rohtang Pass	460	20303	
Sutlej	At 4570 mt. Height near Dharma Pass	1050 in India	24087	Beas joins at Hanke
<b>Ganga and its tributaries</b>				
Ganga	Alaknanda-at an (comprised of two elevation of 6600 mt.	2526 elevation of 7800 mt.	861404	Yamuna, Ram-Ganga, Gandak, Kosi, Ghaghara, Burhihead streams, Gandak, Gomti, Bhagirathi-at an Bagmati, Gomti, Son, Mahanada, Kamla, Damodar, Jalangi, Bhairab confluence of Yamuna at Allahabad
Yamuna	from a hot spring at Yamunotri, 6330 mt	1300	359000	Chambal, Betwa, Son, Hindu Ken, Sarda.
Ram Ganga	Near Nainital, 3110 mt. Height	596	32412	Khos, Gangan, Anil-Kosi, Deoha
Ghaghara	near Manesarvan Lake	1080	127950	Join Ganga below Farukhabad, Rapti, Sarda.
Gandak	In the central Him. Near Tibet, 7620 mt.	425 (in India)	9540 (in India)	in Nepal called "Narayani, Join Ganga near Patna.
Burhi Gandak	Somesar Hill, 330 mt.	320	10150	Join Ganga at Monghyr.
Kosi	From Tibet/ Nepal	730 (in India)	11600	Kosi, Arun, Tamir.
Damodar	Chotanagpur Plateau near Tori, 1366 mt.	541	22000	Join Hoogly below Calcutta
Gomti	east of Pilibhit Town	940	30437	Gartus, Konar, Jomunia, Barakar, Sai, Barma, Saryu, Chuha,
<b>Brahmaputra and its tributaries</b>				
Brahmaputra	Chemayungdung glacier, 885			Rajo-Tsangpo, Lihotse-Dzong.
Ngang chu, Kyi	Near Mansarovar Lake			chu, Giamdu-chu, Lohit Dihing, Disang, Dhansiri, Tista, Torsa
<b>West Flowing Peninsular Rivers</b>				
Narmada	from a tank in Amarkantak Plateau, 900 mt.	1312	98796	Burhner, Baiyar, Sher, Dudhi, Shakkar, Tawa, Hiran, Tendoni,
Bama, Kolar, Anjal, Machak, Kundi, Goi, Karyan.				
Tapi	Near Multai in Betul Districts, 792 mt	724	64145	Purna, Betul, wards Vaghur, Patki Gangel, Dathranji, Bohad, Boni,

Anbhora, Khursi, Kapra, Sipra, Garja, Khokni, Utaols, Bhokar, Subi, Mor, Mautn., Gufi, Aner, Arunavati, Gomai, Hark			
Valer,			
Luni	From Annasagar	482	37250
	In Ajmer		
Sabarmati	in Aravalli Hill	300	21674
			Wakal, Jawai, Mitri, Sei, Hamov, Hathmathi, Watrak, Meshwa
East Flowing Peninsular River			
Mahanadi	in Raipur districts, 442mt.	860	141600
Tel			Sheonath, Harde, Mand, Lb, Ury
Brahmani	in Ranchi, 600 mt.	800	39033
Baitami	in Bihar, 600 met.	333	19500
Subarankkain Bihar		395	19300
Godavari	from Trambak in Nasik,		
	1057 mt.	1465	312812
			Pravara, Mula, Manjra, Pranhita,
Penganga, Maner, Wardha, Wainganga, Sabn, Indaravati, Purna.			
Manjra	in Bihar district	724	30821
Penganga	in Buldhana range	676	23888
Wardha	in Betul district	483	24087
Wainganga	in Seoni district	462	61093
Indravati	in Kalahandi dist	531	41663
Sabari	in Sukaram Hill	418	20427
			Narangi, Boardig, Kotri, Bandia, Silaru.
Krishna	Mahabaleshwar, 1360 mt	1400	258948
			Koyna Yerla, Muneru, Varna.
Panchgango, Dudhganga Ghatprabha, Malprapha, Bhima, Tunghadra, Musi			
Bhima	near Bhimeshwar village	867	69144
			Ghad, Nira, Kagna, Sina.
Tungbhadra from Gomantak peak			69562
			Runga, Bhadra, Hagan.
Cauvery	in Braham gin hills	800	87900
			Hemavali, Harangi, Shimas,
Lokpovni Arkavati, Suvashavathi, Kabbani, Bhavani			

**Willy-nilly :** Tropical cyclone in the Pacific near the east coast of Australia

**Warm front:** The boundary between an advancing warm air mass which is overding a cold air mass. This usually occurs at the front of the warm sector in a depression. The gradient of a warm front is less steep than that of a cold front. This gradual upward movement of moist warm air along the warm front results in the condensation of water vapour and the formation of cloud. Continuous rain for up to several hours precedes the passage of a warm front and is usually accompanied by a rise in temperature, a drop in air pressure and a change in wind direction.

**Wind vane :** Instrument used to indicate the direction of the wind.

**Xerophyte :** Plant which is adapted to living in a region where little moisture is available.

**Yazoo river :** Tributary which is prevented from joining the main river because the latter has built up high natural levees; it thus runs parallel to the main stream for a considerable distance before joining it downstream.

**Zenith :** Point in the celestial sphere vertically above one's head.

**Zodiac :** Zone of the heavens in which lie the paths of the sun, the moon, and the chief planets

**Zonal soil :** A soil which owes its well-developed characteristics largely to the influence of climate and vegetation. They are characterised by well-developed soil profiles.

**Zoogeography :** Study of the distribution of animals on the earth's surface.

**Zoophyte :** An animal which resembles a plant, for example, a coral polyp, a sponge. ■■

# STATES AND UNION TERRITORIES

## Andhra Pradesh

Area : 2,75,068 sq.km; Population : 6,65,08,008; Capital : Hyderabad; Principal Languages : Telugu and Urdu; Governor : Dr. C. Rangarajan; Chief Minister : N.Chandra Babu Naidu.

### History and geography

The earliest mention of the Andhras is said to be in *Alitereya Brahmana* (2000BC). It indicates that the Andhras, originally an Aryan race living in

north India, migrated to south of the Vindhya and later mixed with non-Aryans. Regular history of Andhra Desa, according to historians, begins with 236 BC, the year of Ashoka's death. Afterwards Satavahanas, Sakas, Ikshvakus, Eastern Chalukyas, Kakliyas ruled the Telugu country. Other dynasties which ruled over the area in succession were the kingdoms of Vijayanagar and Qutub Shahi followed by Mir Qumruddin and his successors, known as the Nizams. Gradually, from the 17th century onwards, the British annexed ter-

ritories of the Nizam and consituted the single province of Madras. After Independence, Telugu-speaking areas were separated from the composite Madras Presidency and a new Andhra State came into being on October 1, 1953. With the passing of the States Reorganisation Act, 1956, there was merger of Hyderabad State and Andhra State, and consequently Andhra Pradesh came into being on November 1, 1956.

Andhra Pradesh is bounded on the west by Maharashtra and Karnataka, south by Tamil Nadu, north by Orissa and Madhya Pradesh and east by the Bay of Bengal. It has a coastline of 974 km.

### Economy

Agriculture is the main occupation of about 70 per cent of the

### Area, population and headquarters of districts

S. No.	District	Area (in 1000'sqkm)	Population	Headquarters
1.	Adilabad	16.1	20,82,479	Adilabad
2.	Ananthapur	19.1	31,83,814	Ananthapur
3.	Chittoor	15.2	32,61,118	Chittoor
4.	Cuddapah	15.4	22,67,769	Cuddapah
5.	East Godavari	10.8	45,41,222	East Godavari
6.	Guntur	11.4	41,06,999	Guntur
7.	Hyderabad	0.2	31,45,939	Hyderabad
8.	Karimnagar	11.8	30,37,486	Karimnagar
9.	Khammam	16.0	22,15,809	Khammam
10.	Krishna	18.7	36,98,933	Krishna
11.	Kumool	17.7	29,73,024	Kumool
12.	Mahabubnagar	18.4	30,77,050	Mahabubnagar
13.	Medak	9.7	22,69,800	Sangareddy
14.	Nalgonda	14.2	28,52,092	Nalgonda
15.	Nellore	13.1	23,92,260	Nellore
16.	Prakasam	17.6	27,59,166	Ongole
17.	Nizamabad	8.0	20,37,621	Nizamabad
18.	Rangareddi	7.5	25,51,966	Hyderabad
19.	Srikakulam	5.8	23,21,126	Srikakulam
20.	Visakhapatnam	11.2	32,85,092	Visakhapatnam
21.	Vizianagaram	6.5	21,10,943	Vizianagaram
22.	Warangal	12.9	28,18,832	Warangal
23.	West Godavari	7.7	35,17,568	Eluru

## NATIONAL NETWORK

people in Andhra Pradesh. Rice is a major food crop and staple food of the state. Rice contribute about 80 per cent to 85 per cent of the foodgrain production. Other important crops are jowar, bajra, maize, ragi, small millets, pulses, castor, tobacco, cotton and sugarcane. Forest cover 23 per cent of the State's area. Important forest products are teak, eucalyptus cashew, casuarina, bamboo, soft wood, etc.

Important irrigation schemes implemented in the state include Nagarjunasagar project, Prakasam Barrage, Sir Arthur Cotton Barrage, Tungabhadra low-level canal, Kumool-Cuddaph canal, Kadam Project, Romperu drainage project and Upper Pennar project. Other important projects under implementation are Sriramsagar, Vamsadhara and Polavaram multi-purpose Projects.

Important power projects of the state are : the Nagarjunasagar and Neelam Sanjiva Reddy Sagar (Srisailem Hydel Project), Upper Sileru, Lower Sileru, Tungabhadra Hydel Projects and Nellore, Ramagundam, Kothagudem, Vijayawada and Muddanur thermal projects. By March 1998 the installed capacity was 7,276 mw; 26,565 (cent per cent) villages had been electrified and 18,16,563 lakh pumpsets had been energised by March 1997.

Several major industries are in operation around Hyderabad and Visakhapatnam. They manufacture machine tools, synthetic drugs, pharmaceuticals, heavy electrical machinery, fertilizers, electronic equipment, aeronautical parts, cement and cement-products, chemicals, asbestos, glass and watches. Andhra Pradesh has the largest deposits of quality chrysotile asbestos in the country. It accounts for about 93 per cent of India's total production of barytes. Other important minerals of the state are copper ore, manganese, mica, coal and limestone. The state ranks sixth in manganese ore production and second in mica and limestone production. It stand second in deposits of minerals of strategic importance and sixth with regard to their value produced. The Singareni Coal Mines supply coal to the entire south India.

## Transport

**Roads :** National highways traversing through Andhra Pradesh constitute 2,949 km and state highways, including roads taken over by the Districts and Zilla praja Parishads, cover 43,763 km. There are 1,03,971 km of district roads in the State.

**Railways :** Of the railways route covering 4,248 km in Andhra Pradesh, 3,378 km is broad-gauge and 870 km is metre-gauge.

**Aviation :** Important airports in the State are located at Hyderabad, Tirupati and Visakhapatnam. International flights are operated from Hyderabad to Kuwait, Muscat, Sharjah and Jeddah.

**Ports :** Visakhapatnam is a major port in the state. Minor ports are located at Kakinada, Machilipatnam, Bheemunipatnam, Krishnapatnam, Vadarevu and Kalingapatnam.

## Arunachal Pradesh

**Area :** 83,743 sq km; **Capital :** Itanagar; **Population :** 8,64,558; **Rural :** 753,930; **Urban :** 110,628; **Sex ratio :** 861; **Literacy Rate :** 41.59% (**Gents** 51.45%; **Ladies** 29.69%); **Principal Languages :** Monpa Miji, Aka, Sherdukpen, Nishing, Apatani, Targain, Hill Miji, Adi, Digaru-Mismi, Idu-Mishmi, Khamti, Miju-Mishmi, Nocte, Tangsa and Wancho; **Governor :** Arvind Dave; **Chief Minister :** Mukut Mithi.

## History and geography

There are practically no records relating to the history of this area, except some oral literature and a number of historical ruins found mainly in the foothills. Subsequent explorations and excavations have identified the ruins as dating approximately from the early Christian era. References in early *buranjis* as well as other records speak about the relations between the Arunachal and Assam and the influence exercised by the Ahom king over these areas. However, systematic administration was established in this area only after Independence. Modern history, in

Arunachal Pradesh, begins with the inception of British rule in Assam after the treaty of Yandaboo concluded on the 24th of February 1826.

Before 1962 the area was popularly known as the North East Frontier Agency (NEFA) and was constitutionally a part of Assam. Because of its strategic importance, it was administered by the Ministry of External Affairs until 1965 and subsequently by the Ministry of Home Affairs, through the Governor of Assam. In 1972 it was constituted as a Union Territory and renamed Arunachal Pradesh. On 20 February 1987, it became the 24th state of the Indian Union.

Arunachal Pradesh, shares international boundaries with Bhutan, Tibet, China and Myanmar to the west, north-east, north and east respectively, and the state boundaries with Assam and Nagaland. The terrain consists of submontane and mountainous ranges, sloping down to the plains of Assam, divided into valleys by the rivers Kameng, Subansiri, Siang, Lohit and Tirap.

## Economy

Agriculture is the mainstay of the people of Arunachal Pradesh. An economy which had been mainly dependent on jhum cultivation, has begun to change its course slowly. Foodgrain production which stood at 1,31,026 MT in 1980 had gone upto 2,03,287 MT by 1997-98. Steps were taken

to diversify the agricultural economy by encouraging the cultivation of cash crops like potatoes and horticultural crops like apples, oranges and pineapples.

Industrial development in Arunachal Pradesh has received fresh impetus. There are 17 medium scale industries and 2,851 SSI units registered in the State, one mini cement plant, a fruit processing plant and a citronella oil distillery. The local entrepreneurs are being encouraged to establish tea plantations in the State. Technical education is being provided by two industrial training institutes, one at Roing and another at Daporijo. At present 88 craft and weaving centres in the State provide training to craftsmen in different trades.

Rapid development witnessed in the area of mineral exploration. The Arunachal Pradesh Mineral Development and Trading Corporation Limited (APMDTCL) was set up in 1991 for the conservation and exploration of the vast mineral resources such as coal, oil and gas, dolomite, limestone, graphite, marble, lead and zinc, etc. The Namchik-Namphuk coal field in the Kharsang area of Changlang district taken up by APMDTCL has estimated reserves of 84.23 million tonnes. There is tremendous scope for generation of hydro-power in the State. As against 10,000 KW of power in 1981, the installed capacity of the State

is now about 26 MW. As many as 2,450 villages have been electrified out of a total of 3,649 villages in the State.

## Transport

Roads : Arunachal Pradesh has 330 km of national highway.

## Festivals

Some of the important festivals of the State are : *Mopin* and *Solung* of the Adis, *Lossar* of the Monpass and the *Sherdukpens*, *Boori-boof* of the Hill tribes, *Dree* of the *Apatanis*, *Si-Donyi* of the

### Area, population and headquarters of districts

S. District No.	Area (in 1000 sq.km)	Population	Headquarters
1. Tawang	2,172	28,287	Tawang
2. West Kamang	7,422	56,421	Bomdila
3. East Kamang	4,134	50,395	Seppa
4. Papum-Pare	2,875	72,811	Itanagar(Yupia)
5. Lower Subansiri	10,135	83,167	Ziro
6. Upper Subansiri	7,032	50,086	Daporijo
7. West Siang	8,325	89,936	Along
8. East Siang	4,005	71,864	Pasighat
9. Upper-Siang	6,188	27,779	Yingkiong
10. Dibang Valley	13,029	43,068	Anini
11. Lohit	11,402	1,09,706	Tezu
12. Changlang	4,662	95,530	Changlang
13. Tirap	2,362	85,508	Khonsa

Tagins, Reh of the Idu-Mishmis, Nyokurn of the Nishings, Chalo loku of the Noctes, etc. Animal sacrifice is a common ritual in most festivals.

## Tourist centres

Places of tourist interest are : Tawang, Birang, Bomdila, Tipi, Itanagar, Malinithan, Likabali, Pasighat, Along, Tezu, Miao, Roing, Daporijo, Namdapha, Bhismaknagar, Parashuram Kund and Khonsa.

## Assam

Area : 78,438 Sq km; Population : 2,24,14,332; Capital : Dispur; Principal Language : Assamese; Governor : Lt. Gen. (Retd.) S.K. Sinha; Chief Minister : P.K. Mahanta.

## History and geography

Assam has a rich heritage of culture and civilisation. Assam is peerless in terms of her exquisite natural beauty, cultural richness and human wealth. Being the homeland of a myriad races of men: Austric, Mongolian, Dravidian and Aryan tyhat came to dwell in her hills and valleys at different times since remote antiquity, Assam has developed an enviable composite culture.

Assam, during the epic period was known as Pragiyotisha or the place of eastern astronomy and later as Kamrupa. The earliest epigraphic reference to the kingdom of Kamrupa is found in the Allahabad pillar inscription of Samudragupta. Kamrupa is mentioned as a *Pratyanta* or frontier state outside the Gupta empire but with friendly and subordinate relation to it. The advent of the Ahoms across the eastern hills in 1228 AD was the turning point in Assam history. They ruled Assam nearly for six centuries. The Burmese entered through the eastern borders and

overran the territory at a time when court intrigues and dissensions were sapping the vitality of the Ahom royalty. The British appeared soon in 1825 and by the Treaty of Yandabu, the Burmese ceded Assam to the British.

Assam, the sentinel of north-east India is most strategically situated close to India's international borders with as many as four countries, i.e., China, Burma, Bhutan and Bangladesh. It is surrounded on all other sides by predominantly hilly or mountainous tracts-Bhutan and Arunachal Pradesh on the north, Manipur, Nagaland and Arunachal Pradesh on the east and Meghalaya, Mizoram and Tripura on the south. The climate of the state is of the humid tropical type in the plains and sub-alpine in the hills.

## Economy

Assam is an agricultural state. Agriculture accounts for the livelihood of about four-fifths of

### Area, population and headquarters of districts

S. No.	District	Area in 000'sqkm	Population	Headquarters
1	Adilabad	16.1	20,82,479	Adilabad
1.	Dhubri	1332	2,838	Bhurbi
2	Kokrajhar	801	3,129	Kokrajhar
3	Bongaigaon	808	2,510	Bongaigaon
4.	Goalpara	668	1,824	Goalpara
5.	Barpeta	1,386	3,245	Barpeta
6	Nalbari	1,016	2,257	Nalban
7.	Kamrup	2,000	4,345	Guwahati
8.	Darang	1,299	3,481	Mangaldoi
9.	Sonitpur	1,424	5,324	Tezpur
10	Lakhimpur	752	2,277	North Lakhimpur
11.	Dhemaji	479	3,237	Dhemaji
12.	Morigaon	640	1,704	Morigaon
13.	Nagaon	1,893	3,831	Nagaon
14	Golaghat	828	3,502	Golaghat
15.	Jorhat	871	2,851	Jorhat
16.	Sibsagar	908	2,68	Sibsagar
17.	Dibrugarh	1,042	3,381	Dibrugarh
18.	Tinsukia	962	3,790	Tinsukia
19.	Karbi-Anglong	663	10,434	Diphu
20.	North Cachar Hills	151	4,888	Haflong
21.	Karimganj	827	1,809	Karimganj
22.	Hailakandi	449	1,327	Hailakandi
23.	Cachar	1,215	3,786	Silchar

the State's population, holds the key to the State's economic growth. About 74 per cent of the State's working force is engaged in agriculture and allied activities. The principal food crop is rice. Cash crops are jute, tea, cotton, oilseeds, sugarcane, potato, etc. Major horticulture items are orange and other citrus fruits, banana, pineapple, arecanut, coconut, guava, mango, jackfruit etc., which are grown on a smaller scale. The state has a gross cropped area of about 35 lakh hectares with more than 78 per cent accounting for areas covered by foodgrain crops. Of agro-based industries, tea occupies a pivotal place. Tea gardens in the State occupy an area of about 2.31 lakh hectare, and there are 850 tea estates in all. Assam contributes about 15 per cent of the world's entire tea production and Guwahati Tea Auction Centre has now become the biggest tea auction centre in the world for CTC tea. The only big industry in the State is the agro-based tea industry earning a substantial revenue. As for mineral resources, Assam is fairly rich in petroleum and natural gas, limestone and coal. Exploration, exploitation and refining of petroleum form the bulk of the industries in the State. The fourth refinery at Numaligarh with three million tonnes capacity and at an estimated cost of Rs. 2,650 crore has already started and is expected to be commissioned by December 1998. Assam has always enjoyed the highest reputation for the excellence of her arts and crafts which have been associated with her cottage industries. Cottage industries include handloom, sericulture, cane and tobacco carpentry, brass and metal crafts. Assam produces varieties of silk, Eri, Muga, Tassar and mulberry etc. Muga is non-mulberry silk and it is produced nowhere else in the world except in Assam. A total of 4,77,193 hectares of irrigation potential have been created so far. Two major, five medium and 4,654 minor irrigation schemes have been completed during 1994-96.

Assam at present has an installed capacity of power generation of about 522.5 MW. The major power stations are Chandrapur Thermal Project,

Namrup Thermal Project and a few Mobile Gas Turbine units along with a mini hydro-electric project. Nearly 68 per cent of the villages numbering 21,495 have been covered under Rural Electrification up to 1995-96.

### Transport

**Roads :** In 1993-94, the total length of roads in Assam was 32,154 km which include 2,033 km of National Highway, 2,080 km of State Highway and 28,041 km of other PWD roads.

**Railways :** The length of Railway tract in Assam is 2,440.90 km comprising both metre-gauge and broad-gauge lines. The extension of the broad-gauge railway line from Guwahati to Dibrugarh has been completed. The construction of the 'Waranarayan Setu' - the third bridge over the Brahmaputra at Jogighopa - Pancharatna has been completed and opened on 15 April, 1998.

**Aviation :** Borjhar (Guwahati) Saloniaban (Tezpur), Mochanban (Dibrugarh), Lilabari (Lakhimpur), Kumartugam IS (Dhar) and Rowmah (North) are civil airports in the State operating regular air services.

### Festivals

Assam has an exclusive range of festivals. Bihu is the chief festival celebrated on three occasions. Rongali Bihu or B'ha marks the advent of the cropping season, also ushers in the Assamese New Year. Magh Bihu or Magh B'ha is the harvest festival. A B'ha or Rongali B'ha coming in autumn is a affair.

### Bihar

Area : 1,73,877 sq km; Population : 8,63,74,455; Capital : Patna; Principal Language : Hindi; Governor : Wood Pande; Chief Minister : Mrs. Rabri Devi.

### History and geography

Bihar finds mention in the Vedas, Puranas, epics etc. Bihar was the main scene of activities during the time of Buddha, and 24 Jain Tirthankars.



## NATIONAL NETWORK

Great rulers of the State before the Christian era were Bimbisara, Udayin, who founded the city of Pataliputra, Chandragupta Maurya and Emperor Ashoka and Maurya dynasty, the Sungas and the Kanvas. Then came the Kushan rulers followed by Chandragupta Vikramaditya of the Gupta dynasty. During medieval period Muslim rulers made in-roads into the territory. The first to conquer Bihar was Mohammed-bin-Bakhtiar Khalji. The Khaljis were followed by the Tughluqs and then the Mughals. Taking advantage of the disintegration of the Mughal empire, the British established their foothold in Bihar with the battle of Plassey in 1757. Through successive battles and annexations, the British consolidated their position. Bihar formed part of the Bengal Presidency till 1911, when on 12 December 1911, a separate province of Bihar and Orissa was created in 1936, Bihar was made a separate province.

Bihar is one of the major states of the Indian Union. It is bounded on the north by Nepal, east by West Bengal, west by Uttar Pradesh and south by Orissa. Bihar has a number of rivers; the most important is Ganga, others are: Some, Poonpoo, Falgu, Karmanasa, Durgawati, Damodar, Swarnarekha, Baraker, Koal, Kosi, Gandak, Ghaghara, etc.

### Economy

Bihar has a total geographical area of about 173.30 lakh hectare, out of which only 72.67 lakh hectare is the net cultivated area and gross cultivated area being about 94.97 lakh hectare. About 34.53 lakh hectare net area and 42.11 lakh hectare gross area receive irrigation from different sources. Principal foodgrain crops are paddy, wheat, maize,

### Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarters
1. Araria	2,830	16,11,638	Araria
2. Aurangabad	3,305	15,39,983	Aurangabad
3. Begusarai	1,918	18,14,773	Begusarai
4. Bhagalpur	2,570	19,09,504	Bhagalpur
5. Banka	3,019	12,92,504	Banka
6. Bhojpur	2,474	17,92,771	Arrah
7. Buxar	1,624	10,87,676	Buxar
8. Bhabhua	3,362	9,83,269	Bhabhua
9. Bokaro	2,861	14,54,416	Bokaro
10. Chatra	3,706	6,12,713	Chatra
11. Darbhanga	2,279	25,10,959	Darbhanga
12. Deoghar	2,479	9,33,113	Deoghar
13. Dhanbad	2,086	19,49,526	Dhanbad
14. Dumka	5,158	14,95,709	Dumka
15. East Champaran	3,968	30,43,091	Motihari
16. East Singhbhum	3,533	16,13,088	Jamshed
17. Gaya	4,976	26,64,803	Gaya
18. Girdih	4,941	14,96,189	Girdih
19. Godda	2,110	8,61,182	Godda
20. Gopalganj	2,033	17,04,310	Gopalganj
21. Gumla	9,077	11,53,976	Gumla
22. Garhwa	4,044	8,01,350	Garhwa
23. Hazaribagh	5,049	16,01,567	Hazaribagh
24. Jahanabad	1,569	11,74,900	Jahanabad
25. Jamui	3,098	10,51,527	Jamui
26. Katihar	3,057	18,25,380	Katihar
27. Khagaria	1,486	9,87,227	Khagaria
28. Kishanganj	1,884	9,87,107	Kishanganj
29. Koderma	2,410	6,29,264	Koderma
30. Lohardagga	1,491	2,88,886	Lohardag
31. Madhepura	1,788	11,77,706	Madhepura
32. Madhubani	3,501	28,32,024	Madhubani
33. Munger	3,324	9,43,583	Munger
34. Muzaffarpur	3,172	29,53,903	Muzaffarpur
35. Nalanda	2,367	19,97,995	Biharshar
36. Nawada	2,494	13,59,694	Nawada
37. Palamu	8,705	16,49,841	Daltongar
38. Pakur	1,805	5,64,253	Pakur
39. Patna	3,202	36,18,211	Patna
40. Purnea	3,229	18,78,885	Purnea
41. Ranchi	7,698	22,14,048	Ranchi

and pulses. Main cash crops are sugarcane, jute, tobacco, oilseeds, onion, chillies, mesta. Forest cover about 29 lakh hectare is almost 17 per cent of the geographical area. Major industries are : two integrated steel plants

namely, Bokaro Steel and Tata Iron and Steel and a number of secondary steel making units with a total established annual capacity of around 7.20 million tonnes, the largest coal-based spongy iron plant at Chandil. There are 13 sugar mills in the private sector and 15 in the public sector located in North Central Bihar with a total crushing capacity of 46,000 TPD, and a number of distilleries, tanning and leather finishing industries in north and central region of the State and three large jute mills at Katihar and Samastipur. New projects with approximate investment of Rs. 15,000 crore include zinc oxide and zinc ingots, expansion and modernisation of Bokaro Steel Limited, modernisation and expansion of TISCO, industrial alcohol and paper plants, copper concentrate, granite cutting and polishing, steel blast furnace crystal glass, steel rolling mill, cold rolled steel complex, coal washeries, slag cement, alumina plants, etc.

Bihar is renowned for its rich mineral resources. The mineral products are coal, iron ore, bauxite, lime stone, mica, pyrite, graphite, copper ore, etc. It is the privilege of Bihar to have monopoly in the production of uranium and pyrite. Bihar has an ultimate irrigation potential of 122.98 lakh hectare as estimated by the second Bihar State Irrigation Commission 1994. By the year 1994-95, the total area under irrigation through medium and major schemes was 27.46 lakh hectare. About 56.68 lakh hectare area is irrigated through minor irrigation schemes (including surface and ground water).

### Transport

**Roads :** Up to March 1995 Bihar had 19,095 km of metalled road including 2,118 km of national highways, 4,192 km of state highways and 12,785 km of other PWD roads, (MDR/ODR).

**Railways :** Bihar has a fairly good railway network. Communication. North Bihar is difficult for railings as there is only one railway bridge at Mokamah. A few railway routes connecting important place

like Muzaffarpur, Samastipur-Barauni-Katihar and Muzaffarpur Chapra-Siwan have been converted into broad gauge. The main rail junctions are at Patna, Dhanbad, Gaya, Muzaffarpur, Katihar, Samastipur, etc.

**Aviation :** There are airports at Patna, Ranchi, Jamshedpur and Gaya.

## Goa

**Area :** 3,702 sq km; **Population :** 11,69,793; **Capital :** Panaji; **Principal Languages :** Konkani and Marathi; **Governor :** Md. Fazal; **Chief Minister :** Francisco Sardinha.

### History and geography

Early history of Goa is obscure. In the first century of the Christian era, Goa was a part of the Satavahana empire, followed by the Kadamba, the Rashtrakutas of Malkhed, the Chalukyas and the Silharas. In 1510, Alfonso de Albuquerque with the help of the emperor of Vijayanagar attacked and captured Goa. With the arrival of the Jesuit Priest Francis Xavier in 1542 proselytisation began in Goa. However, the Portuguese continued to rule over the territory except for an interlude during the later half of the 17th century when Shivaji conquered a few areas in and around Goa. Even after India's independence, Goa continued to be in the hands of the Portuguese. However, they could not fulfil the aspirations of the people of Goa and ultimately on 19 December 1961, Goa was liberated and made a composite union territory with Daman and Diu. On 30 May 1987 Goa was conferred statehood and Daman and Diu was made a separate Union Territory.

Goa is situated on the western coast of The Indian peninsula. On its north runs the Terekhol river which separates Goa from Maharashtra and on the south lies North Canara district of

#### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. North Goa	1,736	6,64,804	Panaji
2. South Goa	1,966	5,04,989	Margao

## NATIONAL NETWORK

Karnataka. On the east lie the Western Ghats and in the west the Arabian Sea. Panaji, Margao, Vasco, Mapusa and Ponda are the main towns of Goa.

### Economy

Rice is the main food crop. Pulses, ragi and other food crops are also being grown. Main cash crops are coconut, cashewnut, arecanut, sugarcane and fruits like pineapple, mango and banana. Goa produces 2,21253 tonnes of paddy and 62,400 tonnes of sugarcane and 119 million nuts of coconut. The State has a rich forest cover of more than 1,424 sq km.

The State has 5,488 small-scale industrial units with a total investment of Rs. 18,417 lakh and employment opportunities for 36,734 persons, in large and medium sector up to February 1998, 113 units with an investment of Rs. 1,145.53 crore employing 16,119 persons. There are 16 industrial estates besides a new electronic city coming up in the state. Mineral products are ferro-manganese, bauxite and iron ore contribute substantially to the economy of the State through exports.

### Transport

**Roads :** Of the motorable roads, national highway constitutes 224 km, state highways 232 km and district roads 815 km

**Railways :** Goa is linked with Delhi, Mumbai, Mangalore and Thiruvananthapuram through the Konkan Railway, which has introduced several fast trains on these lines. Vasco da Gama is connected with Bangalore and Belgaum on the South Central Railway presently for goods traffic only.

**Aviation :** Mumbai, Delhi, Thiruvananthapuram, Cochin, Chennai, Agartala and Bangalore are linked with Dabolim through regular Airlines services.

**Ports :** Mormugao is the major port in the State. Mormugao

handles cargo vessels. Minor ports are located at Panaji, Tiracol, Chapora Betual and Talpona of which Panaji is the main operative port. offshore berth at Panaji has been commissioned recently.

## Gujarat

**Area :** 1,96,024; **Population :** 4,13,09  
**Capital :** Gandhinagar; **Principal Language :** Gujarati; **Governor :** S.S. Bhandari; **Chief Minister :** Keshubhai Patel.

### History and geography

The history of Gujarat goes back to BC. According to mythology, Lord Krishna came to Mithura to settle on the west coast of Saurashtra which later came to be known as Dwarka, gateway. Later, it saw the ascent and eventual decline of various kingdom: Mauryans, Guptas, Pratiharas and others. It was with Chalukya (Solankis) that Gujarat witnessed progress and prosperity. In spite of the plunderings of Mahmud of Ghazni, the Chalukyan kings were able to maintain general prosperity and well-being of the State.

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Ahmedabad	8,707	48,01,812	Ahmedabad
2. Amreli	6,760	12,52,589	Amreli
3. Banaskantha	12,703	21,62,578	Palanpur
4. Bharuch	9,038	15,46,145	Bharuch
5. Bhavnagar	11,155	22,92,026	Bhavnagar
6. Gandhinagar	649	4,08,992	Gandhinagar
7. Jamnagar	14,125	15,63,558	Jamnagar
8. Junagadh	10,607	23,94,859	Junagadh
9. Kutch	45,652	12,62,507	Bhuj
10. Kheda	7,194	34,40,897	Kheda
11. Mehsana	9,027	29,37,870	Mehsana
12. Panchmahals	8,866	29,56,458	Godhara
13. Rajkot	11,203	25,14,122	Rajkot
14. Sabarkantha	7,390	17,61,086	Himatnagar
15. Surat	7,657	33,97,900	Surat
16. Surendranagar	10,489	12,08,872	Surendranagar
17. Dang	1,764	1,44,091	Ahwa
18. Vadodara	7,794	30,89,610	Vadodara
19. Valsad	5,244	21,73,672	Valsad

After this glorious respite, Gujarat faced troubled times under the Muslims, Marathas and the British rule.

Before Independence, the present territories of Gujarat used to be in two parts the British and the princely territories. With the reorganisation of the State, the Union of the State of Saurashtra and the Union Territory of Kachchh along with the former British Gujarat, became a part of the bilingual State of Bombay. The present state of Gujarat came into being on 1 May 1960.

Gujarat is situated on the west coast of India. The state is bounded by the Arabian Sea on the west, Madhya Pradesh in the south-east and Maharashtra in the South and Pakistan and Rajasthan in the north-east respectively.

## Economy

Gujarat is the main producer of tobacco, cotton and groundnut in and provides inputs for important industries like textiles, oil and soap. Other important cash crops are isabgol, paddy, wheat and bajra. Forest species available in Gujarat are teak, khair, sadad, haldaryo and manual bamboos.

Gujarat is among the leading industrialised states in the country. There are more than 1,600 large and medium and 2,12,000 small-scale industrial units registered as on March 1998. Gujarat has received acknowledgements of 4,782 Industrial Entrepreneurs Memorandum (IEM) with 14.53 per cent share in total IEMs filed in the country from July 1991 to March 1998.

The irrigation potential through surface water is assessed at 39.40 lakh hectares including 17.92 lakh hectares through Sardar Sarovar and Narmada Project. By June 1997 the total irrigation potential has increased to 35.85 lakh hectares in the State. The ultimate irrigation potential including ground water as reassessed is 64.88 lakh hectares.

## Transport

**Roads :** The State has approximately 72,165 km of roads. The first expressway of the nation is

under construction between Ahmedabad and Vadodara.

**Aviation :** The main airport of Gujarat Ahmedabad is connected with Mumbai, Delhi and other cities by daily services. Ahmedabad airport has got the status of an International Airport. The State has nine other airports at Vadodra, Bhavnagar, Bhuj, Surat, Jamnagar, Kandla, Keshod, Porbandar and Rajkot.

**Ports :** Gujarat has 40 ports of which Kandla is a major one. During 1996-97, Kandla Free Trade Zone's (KAFTZ) exports were Rs. 374.15 crore. The General Currency exports spanning over 100 countries were Rs. 331.91 crore. The net foreign exchange earnings was Rs. 244.72 crore and the value addition achieved was 65.41 per cent.

## Festivals

Tametar fair is held at village Tametar on the honour of Lord Shiva on the 4th, 5th and 6th days of the half of the month of Bhadrapada (August/September). Madhavrai fair at Madhavrai near Porbandar is to celebrate as the marriage and elopement of Lord Krishna and Rukmini, on the ninth day of the bright half of the month of Chaitra (March/April). Ambanji fair dedicated to Amba, mother goddess is held in Banaskantha district. The biggest annual fair, *Janmashtami* the birthday of Lord Krishna is celebrated at Dwarka with great enthusiasm. Other festivals are Makar Sankranti, Navratri, *Dangi darbar*, *Shamlaji fair*, *Bhavnath fair*, etc.

## Haryana

**Area :** 44,212 sq km; **Population :** 1,64,63,640  
**Capital :** Chandigarh; **Principal Language :** Hindi  
**Governor :** Mahabir Prasad; **Chief Minister :** Om Prakash Chautala.

## History and geography

Haryana has a proud history going back to the Vedic Age. The state was the home of the legendary Bharata dynasty, which has given the name Bharat to India. Haryana finds mention in the great epic of Mahabharata. Kurukshetra, the

scene of the epic battle between the Kaurvas and the Pandavas, is situated in Haryana. The state continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the imperial capital of India. Thereafter, Haryana functioned as an adjunct to Delhi and practically remained anonymous till the First War of India's Independence in 1857. When the rebellion was crushed and the British administration was re-established, the maharajas and Nawabs had to do away with their territories. Their territories were either merged with the British territories or handed over to the rulers of Patiala, Nabha and Jind. Haryana thus became a part of the Punjab province. With the

## Area, population and headquarters of district

S. District No.	Area In 000'sqkm	Population	Headquarters
1. Ambala	1,569	7,97,480	Ambala
2. Bhiwani	5,140	11,39,718	Bhiwani
3. Faridabad	2,760	14,77,240	Faridabad
4. Fatehabad	2,415	6,15,242	Fatehabad
5. Gurgaon	2,105	11,46,090	Gurgaon
6. Hisar	4,191	8,20,685	Hisar
7. Jhajjar	1,890	8,85,797	Jhajjar
8. Jind	2,736	6,41,943	Jind
9. Kaithal	2,799	8,20,685	Kaithal
10. Kamal	1,967	8,85,797	Kamal
11. Kurukshetra	1,217	6,41,943	Kurukshetra
12. Mahendergarh	1,683	6,81,869	Namaul
13. Panchkula	816	3,19,398	Panchkula
14. Panipat	1,754	8,33,501	Panipat
15. Rewari	1,559	6,23,301	Rewari
16. Rohtak	1,708	7,79,707	Rohtak
17. Sirsa	4,276	9,03,536	Sirsa
18. Sonapat	2,260	10,64,521	Sonapat
19. Yamunanagar	1,756	8,21,880	Yamunanagar

reorganisation of Punjab on 1 November 1966, Haryana was made into a full-fledged state.

This state is bound by Uttar Pradesh in the east, Punjab in the west, Himachal Pradesh in the north and Rajasthan in the south. National Capital Territory of Delhi is adjacent to Haryana.

## Economy

Agriculture is the mainstay of more than 80 per cent people in Haryana. The quantum of foodgrains production, which was nearly 25.92 lakh tonnes at the time of inception of the State, is likely to touch 113.70 lakh tonnes in 1997-98. Rice, wheat, jowar, bajra, maize, barley and pulses, sugarcane, cotton, oilseeds and potato are the major crops of the State. Under the diversification of crops, more and more area is being brought under cash crops like sugarcane, cotton and oilseeds. New crops like sunflower, soyabean and fruits and vegetables are also being encouraged.

Haryana's achievement in the industrial sector has been quite phenomenal. The number of large and medium scale industrial units have increased from 162 in the year 1966 to 969 today.

The number of small and rural industries has also increased from 4,520 to 1,43,000. These are providing employment to about 10.50 lakh people. Haryana accounts for four-fifths of the country's total passenger car production, two-thirds of motor cycles and tractors and one-fourth of the total production of cycles and sanitary wares. Panipat has earned the reputation of being the "Weaver City" of India for its exquisite, hand-lufted woollencarpets and colourful handloom products. One of the most remarkable achievements is in the export front. The annual exports from Haryana touched an all time high mark of Rs. 2,590 crore.

Haryana is a beneficiary of the multi-purpose project in Sutlej and Beas, sharing benefits with Punjab and Rajasthan. Major irrigation projects are Western Yamuna Canal, Bhakra Canal System and Gurgaon Canal. Haryana has raised water from lower levels to higher and dry slopes. It is a new endeavour that gave practical shape to the lift irrigation for the first time in India.

The Jui, Sewani, Loharu and Jawahar Lift. Nehru lift irrigation schemes have helped to carry irrigation water against gravity flow to arid areas.

This has served as an effective check against the advance of the Rajasthan desert. Techniques of Sprinkler and Drip Irrigation have been introduced in the highly undulating and sandy tracts of Haryana. The government is taking up another Megawatt lift irrigation scheme in Gurgaon district with a capacity of 800 Cs.

Power Sector Reform and Restructuring Programme launched in the State envisages investment of Rs. 7,900 crore within the next 10 years. New generation projects of about 1500 MW are being pursued and the existing thermal power station at Panipat and Faridabad are being geared up.

## Transport

**Roads :** In Haryana all villages stand connected with metalled roads. The length of roads in the State today has increased to 22,756 km from merely 5,100 km in 1966. 4-laning of National Highway No.1 from Murthal (Delhi border) to Kamal has been completed and the work from Kamal to Punjab border is in full swing. Similarly, NH-2 from Ballabgarh to U.P. border has been completed and opened to traffic.

**Railways :** Rail routes from Delhi to Agra, Ajmer, Ferozepur and Chandigarh cross through the State. Ambala, Panipat and Kurukshetra are important railway stations. There is a railway workshop at Jagadhari.

**Aviation :** There are five civil aerodromes in the State viz., Pinjore, Kamal, Hisar, Bhiwani and Narnaul.

## Himachal Pradesh

**Area :** 55,673 sq km; **Population :** 51,70,877; **Capital :** Shimla; **Principal Languages :** Hindi and Pahari; **Governor :** Vishnu Kant Shastri; **Chief Minister :** Prem Kumar Dhumal.

## History and geography

Its earliest known inhabitants were the tribals. In the subsequent centuries, the hill chieftains accepted the suzerainty of the Mauryan empire, and in the later centuries of the Kushans,

the Guptas and Kanauj rules. During the *Mughal* period, the Rajas of the hill states made some mutually agreed arrangements which governed their relations. In the 19 century, Ranjit Singh annexed and subjugated many of the states. When the Britishers came, they defeated Gorkhas and entered into treaties with some Rajahs who annexed the kingdoms of others. The situation more or less remained unchanged till 1947. After Independence, 30 princely states of the area were united and the present Himachal Pradesh was formed on 15 April 1948. With reorganisation of Punjab on 1 November 1966, certain areas belonging to it were also included in Himachal Pradesh. On 25th January 1971, Himachal Pradesh was made a full-fledged State.

The State is bordered by Jammu and Kashmir on north, Punjab on west and south-west, Tibet on east, Uttar Pradesh on south-east and Haryana in south.

## Economy

The economy of the state is predominantly agro-pastoral and over three-fourth of its working population directly engaged in agricultural sector. Holdings are marginal with over 83.7 per cent farmers falling in small and marginal category and the net irrigated area accounts for one-fifth of the net sown area. Diverse agro-climate conditions afford excellent opportunities for horticulture and cash crops. Fruit production in the State has crossed the 3.11 lakh tonnes mark. The foodgrain production level is 13.43 lakh tonnes and vegetable production is 4.25 lakh tonnes.

The State has adopted a new industrial policy. Priority is now given to industries based on agro-horticulture produce, herbal resources, wool and sericulture and electronic industries. It has now 167 large and medium units and 26,000 small scale units which provide employment to 1.33 lakh persons. It has set up 21 industrial areas and 7 industrial estates. One growth centre with an estimated cost of Rs. 22 crore is being developed at Sansarpur Terrace and one Export Promotion Industrial Park with an estimated cost of Rs. 20

## Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarters
1. Bīlaspur	1,167	2,95,387	Bīlaspur
2. Chamba	6,528	3,93,286	Chamba
3. Hamirpur	1,118	3,69,128	Hamirpur
4. Kangra	5,739	11,74,072	Dharamasala
5. Kinnaur	6,401	71,270	Reckong Peo
6. Kullu	5,503	3,02,432	Kullu
7. Lahaul and Spiti	13,835	31,294	Keylong
8. Mandi	3,950	7,76,372	Mandi
9. Shimla	5,131	6,17,404	Shimla
10. Sirmaur	2,825	3,79,695	Nahan
11. Solan	1,936	3,82,268	Solan
12. Una	1,540	3,78,269	Una

## Transport

**Roads :** Himachal Pradesh has now a road length of nearly 20,276 km. It has three national highways. Out of 16,997 census villages, 7,652 villages have been connected with motorable roads.

**Railways :** The State has two narrow meter gauge railway lines running from Pathankot to Joginder Nagar and Kalka to Shimla. Broad-gauge railway line from Nangal to Talwara under construction has been commissioned upto Una. Survey work on Bhanupalli-Bīlaspur-Berī borad-gauge is in under con-

sideration with the railways.

crore ts being developed at Baddi. At Parwanar exist one of the biggest fruit processing plants in Asia.

The climatic condition of the state is quite congenial to the growth of sericulture which provides subsidiary occupation to about 10,000 families. Tea production is another important industry in which about 2,000 tea planters with about 2,063 hectare of land are presently engaged. The average annual production of tea in the state is 14 lakh kg.

The important minerals in the state are limestone, rock-salt, gypsum, silica-sand and baryte. About 300 mineral based industries like stone crushers, mini-cement plant, hydrated lime unit, calcium carbonate units, limestone powder, etc., have been established. There are three big cement plants already in the state.

The state has limited scope for major and medium irrigation projects. Three medium irrigation projects one Giri Bata, Bhabour Sahib-I and Balh have been commissioned and one more Bhabour Sahib-II is nearing completion. Minor irrigation schemes cover an area of over 1.88 lakh hectare in the state out of a total potential area of 2.85 lakh hectare in the state. The state has enormous hydel potential of 20,640 MW. The state government has taken to selective privatisation for its speedy exploitation.

**Aviation :** The State has three airports at Bhuntar (Kullu Valley), Jubbarhatti (Shimla) and Geggai (Kangra). Work on airstrips at Banikhet in Chamba district is in progress. The state government has set up 12 helipads in different parts of the State.

## Jammu and Kashmir

**Area :** 2,22,236<sup>1</sup> sq km; **Population :** 77,18,700<sup>2</sup> **Capital :** Srinagar (Summer) Jammu (Winter); **Principal Languages :** Urdu, Kashmiri, Dogri, Pahari, Balti, Ladaki, Punjabi, Gujri and Dardic; **Governor :** G.C. Saxena; **Chief Minister :** Dr. Farooq Abdullah.

## History and geography

According to a legend which is even mentioned in historical texts like Rajtarangini and Nilmat Purana, Kashmir was once a large lake. As the legend goes Kashyap Rishi drained off the water making it an abode. But geologists have their own theory which says that geographical changes made way for the outflow of water by subsidence of the mountain at Khadianayar, Boramula. Thus emerged the valley of Kashmir, the paradise on earth. Ashoka introduced Buddhism to Kashmir in the 3rd century BC which was later strengthened by Kanishka. Huns got the

control of the valley in the early 6th century. The Valley regained freedom in 30 AD but soon came under the rule of the Ujjain empire. After the decline of the Vikramaditya dynasty, the valley had its own rulers. There was a synthesis of Hindu and Buddhist cultures. Lalitaditya (697-738 AD) who extended his rule up to Bengal in the east, Konkan in the south, Turkistan in the north west and Tibet in the north. It was the most famous Hindu ruler. He came to Kashmir during 13th and 14th century AD. Muslims now constitute majority in Kashmir. Zain-ul-Abidin (1420-70) was the most famous Muslim ruler who came to Kashmir when the Hindu king Sinha Deva fled before Tatar invasion.

Jammu has also been mentioned in the Mahabharata. Two recent findings of Harappan remains and artefacts of Mauryan, Kushan and Gupta periods at Akhnour have added new dimensions to its ancient character. The land of Jammu was divided into 22 hill principalities. Raja Deva of the Dogra rulers conquered Marwar territories to consolidate his kingdom. The State was governed by Dogra rulers till 1947 when the Maharaja Hari Singh signed the Instrument of Accession in favour of Indian Union on 26 October 1947.

Jammu and Kashmir State is situated between 32°17' and 36°58' north latitude and 73°26' and 83°30' east longitude. Geographically the State can be divided into four distinct zones. First, the mountainous and semi mountainous plain commonly known as Kandi belt, the second, hills including Siwalik ranges, the third, mountains of Pir Panchal range and the fourth is Tibetan tract of Ladakh and Kargil.

Handicrafts is the traditional industry of the State. It has been receiving top priority in view of its employment potential and also demand for handicrafts goods both within and outside the country. Handicrafts production includes primarily

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Bīlaspur	1,167	2,95,387	Bīlaspur
1. Anantnag	3,984	8,26,291	Anantnag
2. Badgam	1,371	4,97,346	Badgam
3. Baramula	4,588	8,61,214	Baramula
4. Doda	11,691	5,25,326	Doda
5. Jammu	3,097	12,07,996	Jammu
6. Kargil	14,036	81,067	Kargil
7. Kathua	2,651	4,92,288	Kathua
8. Kupwara	2,379	4,10,404	Kupwara
9. Leh	82,665	89,974	Leh
10. Pulwama	1,398	5,16,441	Pulwama
11. Punch	1,674	2,92,207	Punch
12. Rajauri	2,630	4,17,333	Rajauri
13. Srinagar	2,228	8,92,506	Srinagar
14. Udhampur	4,550	6,02,807	Udhampur

paper machine, wood carving, carpets, shawl making, embroidery, etc. This industry particularly in carpets earns substantial foreign exchange. The production turnover of handicraft goods was Rs 250 crore in 1995-96 and the export estimated at Rs. 150 crore. Carpet exports alone earned for the country a foreign exchange of Rs 13.20 crore in 1994-95.

About 80 per cent of the population of the state depends on agriculture. Paddy, wheat and maize are the major crops. Barley, bajra and jowar are also cultivated in some parts. Gram is being grown in Ladakh.

A provision of Rs 205.52 crore stands earmarked for irrigation and flood control including command area development programme of the State for the Eighth Five Year Plan. The area irrigated was 4.42 lakhs hectare by 1993-94 end.

The Eighth Five Year Plan outlay for power sector stands at Rs 1175.48 crore. Out of 6,477 inhabited villages 6,241 villages electrified upto 1995-96. The installed power capacity by the end of March 1995 was 367.50 MW. Other 3.65 MW were added in 1995-96.

### Transport

Roads : The road length is 13,540 km.



## NATIONAL NETWORK

**Railways :** At present rail system extends only upto Jammu. Work on Jammu-Udhampur railway line is in progress. Survey works for extension of railway line from Udhampur to Srinagar has been approved. The survey has commenced.

**Aviation :** Srinagar, Jammu and Leh are major airports connecting Jammu and Kashmir with other parts of the country.

### Karnataka

**Area :** 1,91,791 sq km; **Capital :** Bangalore; **Population :** 4,49,77,201; **Principal Language :** Kannada; **Governor :** V.S. Rama Devi; **Chief Minister :** S.M. Krishna.

### History and geography

Karnataka has a history of more than 2,000 years. Besides being recorded the Nandas, Mauryas, and the Shatavahanas, Karnataka came to have indigenous dynasties like the Kadambas of Banavasi and the Gangas from the middle of the 4th century AD. The Chalukyas of Badami (500-735 AD) ruled over a wider area, from the Narmada to the Kaveri from the days of Pulikeshi

II (609-642 AD) who even defeated Harsha of Kanauj. This dynasty created fine moats at Badami, Aihole and Pattadakal both and rock-cut. Aihole has been one of the centres of temple architecture in the country. The Chalukyas (753-973 AD) of Malkhed who succeeded them levied tribute on the rulers of Kanauj successively in the so-called 'Age of Imperial

After Independence the new united state was created in 1956 and was named Karnataka in 1973. Karnataka is situated between Goa and Maharashtra, to the west of Maharashtra, to the west of Tamil Nadu and north of Kerala. It has a sea coast of nearly 480 km (300 with inundations).

### Economy

Agriculture and allied activities account for nearly 65 per cent of the work force in the state. Out of the geographical area of 1,90,498 sq km, 1,04,19,904 hectares is cultivated. The major food crops are paddy, jowar, ragi, sorghum, wheat and pulses. The state stands

second in the production of foodgrains in the country. It has increased from 76.04 lakh (1953) to 84.96 lakh tonnes.

Karnataka has 14 major basins. Krishna (58.66 per cent), Cauvery (18.97 per cent) and Tungabhadra are prominent among them. The average annual yield of foodgrains has been estimated as 97,35,000 tonnes. The ultimate irrigation potential from all sources has been estimated as about 55 lakh hectares. Of this, 35 lakh hectares are under medium, 10 lakh hectares are under irrigation (surface) and 10 lakh hectares are under ground.

Karnataka accounts for 10 per cent of the national industrial sector. The state income

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Bangalore	2,190	48,39,162	Bangalore
2. Bangalore Rural	5,815	16,73,194	Bangalore
3. Belgaum	13,415	35,84,000	Belgaum
4. Bellary	9,885	18,90,092	Bellary
5. Bidar	5,448	12,56,000	Bidar
6. Bijapur	17,069	29,28,000	Bijapur
7. Chikmagalur	7,204	10,17,283	Chikmagalur
8. Chitradurga	10,852	21,80,443	Chitradurga
9. Dakshina Kannada	8,441	26,94,264	Mangalore
10. Dharwad	13,738	35,03,150	Dharwad
11. Gulbarga	16,224	25,82,169	Gulbarga
12. Hassan	6,814	15,70,000	Hassan
13. Kodagu	4,102	4,89,000	Madikeri
14. Kolar	8,223	22,17,000	Kolar
15. Mandya	4,961	16,44,374	Mandya
16. Mysore	11,954	31,65,018	Mysore
17. Raichur	14,017	23,10,000	Raichur
18. Shimoga	10,553	19,10,000	Shimoga
19. Tumkur	10,598	23,06,000	Tumkur
20. Uttara Kannada	10,291	12,20,260	Karwar

undertakings include Bharat Earth Movers, Bharat Electronics, Bharat Heavy Electricals, Hindustan Aeronautics Limited, Hindustan Machine Tools, Indian Telephone Industries, Wheel and Axle, New Government Electric Factory and Mangalore Chemicals and Fertilizers. There are a number of factories under joint and private sectors and also small scale industries. Some of the manufactured items include aircraft, rail coaches, telephone instruments, electronic and telecommunication equipments, glass, batteries, spark plugs, electric motors, textiles etc. There are about 8,614 large and medium industries in the state with an investment of Rs. 14,370.28 crore. There are more than 1.86 lakh small scale industrial units with an investment of Rs. 2,541 crore. Karnataka stands first in the production of electronic equipment and raw silk. The State is famous for its sandal soap and sandal wood oil. The State is also rich in mineral resources.

## Transport

**Roads :** Karnataka had 1,37,520 lakh km (1996-97) of motorable roads including 1,997 km of national highways. The surfaced road length with 0.87 lakh km constituted 65 per cent of the total road length.

**Railways :** Rail network in Karnataka is 3,192 km which includes broad gauge (2,173 km), metre gauge (917 km) and narrow gauge (102 km). Nearly 300 km is under conversion.

**Aviation :** Bangalore, Belgaum, Mangalore and Hubli are the main airports. Direct flight facilities to major cities of India are available from Bangalore.

**Ports :** New Mangalore port is the main all-weather seaport in Karnataka which mainly handles cargo vessels. Special facilities for export of Kudremukh iron ore and to handle crude, coal, LPG, etc., were developed with Sea Bird -project of the Indian Navy coming up near Karwar.

## Kerala

**Area :** 38,863 sq km; **Population :** 2,90,98,518; **Capital :** Thiruvananthapuram; **Principal Language :**

**Malayalam;** **Governor :** Justice Sukhdev Singh Kang; **Chief Minister :** E.K. Nayanar.

## History and geography

To a large extent the ancient history of Kerala is shrouded in the mists of mythology. The most popular legend is that Kerala was raised from the depths of the ocean. Legend apart, Kerala's culture has been an integral part of the mainstream of Indian pluralistic tradition. Its history comprise assimilation and fusion of old traditions and new values in every sphere of human thought and activity.

In between the high western ghats on the east and the Arabian sea on the west, the width of the State varies from 35 km to 120 km. According to the geographical features, the State can be divided into hills and valleys, midland plains and coastal belt.

## Economy

Like most of the Indian states it is also agriculturally dependent. About 50 per cent of the population depend upon agriculture for their livelihood. A unique feature of the State is the predominance of cash crops. Kerala is a major producer of coconut, rubber, pepper, cardamom, ginger, cocoa, cashew, arecanut, coffee and tea. Tree spices like nutmeg, cinnamon, cloves, etc., are also cultivated. Rice and tapioca are important food crops. Coconut is the most important cash crop of Kerala while pepper earns the maximum foreign exchange. Banana, pineapple, mango and jackfruit are major fruit crops. Kerala is not self-sufficient in food production. The total area under cultivation has increased in respect of coconut, rubber, pepper and turmeric. However the crops like cashewnut, banana, groundnut and sesamum have lost their coverage in area.

Kerala is rich in industrial potentialities and infrastructure facilities such as hydro-electric power, rich forest, rare minerals like ilmenite and monazite and the efficient system of transport and communications. Traditional industries are handloom, cashew, coir and handicrafts. Other important industries are rubber, tea, ceramics

## Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Alappuzha	1,414	20,01,217	Alappuzha
2. Ernakulam	2,407	28,17,236	Ernakulam
3. Idukki	5,019	10,78,006	Painavu
4. Kannur	2,996	22,51,727	Kannur
5. Kasaragode	4,992	10,71,508	Kasaragode
6. Kollam	2,491	24,07,566	Kollam
7. Kottayam	2,203	18,28,271	Kottayam
8. Kozhikode	2,345	26,19,941	Kozhikode
9. Malappuram	3,550	30,96,330	Malappuram
10. Palakkad	4,480	23,82,235	Palakkad
11. Pathanamthitta	2,642	11,88,352	Pathanamthitta
12. Thiruvananthapuram	2,192	24,96,650	Thiruvananthapuram
13. Thrissur	3,032	27,37,311	Thrissur
14. Waynad	2,132	6,72,128	Kalpetta

Thiruvananthapuram has declared an International port from January 1991-92.

**Ports :** Kochi the major port of Kerala plays a tal role in expanding f trade as well as coastal tr. There are three inte ports and 10 minor ports.

## Festivals

Kerala is the home many colourful festivals. of them have a religious f inspired by Hindu myth. Almost every village has its fairs and festivals and f

electric and electronic appliances, telephone cables, transformers, bricks and tiles, drugs and chemicals, general engineering, plywood splints and veneers, Beedi and cigar, soaps, oils, fertilizers and Khadi and village industry products.

The irrigation system in Kerala is serviced through major, medium and minor irrigation as well as ground water and command area development programmes. Major irrigation project are Malappuzha, Chalakkudy, Peechi, Pamba, Periyar, Chittoorpuzha, Kuttiyadi, Neyyar and Chimmini. The medium projects are Pothundy, Gayathri, Valayar, Vazhasni, Mangalam and Cheerakuzhi. Construction works of seven major irrigation projects- Kallada, Pazhassi, Muvattupuzha, Idamalayar, Karappara-Kuriarkutty, Chaliar and Kanjirappuzha are in progress. Most of the have projects are hydrobased with an installed capacity of 1991-1995 MW.

## Transport

**Roads :** The length of roads in the State is 1.42 lakh km. The national highways that pass through the State are NH 17, NH 47 and NH 49.

**Railways :** The State has a total railway network of 1,198 km and is connected with almost all major places in the country.

**Aviation :** There are three airports, viz., Thiruvananthapuram, Kochi and Kozhikode.

ties. Onam is the most typical Kerala festival has now earned an all-India character. coincides with harvest season and is an sion of spontaneous revelry. Onam cel home coming of Mahabali, legendary king, rules over Kerala in an age of plenty but pushed down to infernal regions by Vishnu in form of Vamana. It is now celebrated as a tional festival under government auspices.

## Madhya Pradesh

**Area :** 4,43,446 sq km; **Populatio** 6,61,81,000; **Capital :** Bhopal; **Principal Lang** : Hindi; **Governor :** Dr. Bhai Mahavir; **Chief M** ter : Digvijay Singh.

## History and geography

Madhya Pradesh is centrally situated of the country. The earliest reference to it is in times of king Ashoka who ruled over Ujjain. sizeable portion of Central India was part of Gupta empire (300-500 AD). The Muslims into Central India in the beginning of 11th . First of all Mahmud of Ghazni came over and then Mohammad Gouri who incor some part of Central India into his ruling l of Delhi. Central India was also part of the M empire. During the period between the beg

**Area, population and headquarters of districts**

District	Area in 000'sqkm	Population	Headquarters
Balaghat	9,229	13,62,731	Balaghat
Bastar	39,114	22,70,472	Jagdalpur
Betul	10,043	11,80,527	Betul
Bhind	4,459	12,14,480	Bhind
Bhopal	2,772	13,50,302	Bhopal
Bilaspur	19,897	37,96,553	Bilaspur
Chhatarpur	8,687	11,58,853	Chhatarpur
Chhindwara	11,815	15,63,332	Chhindwara
Damoh	7,306	8,97,544	Damoh
Datia	2,038	3,97,743	Datia
Dewas	7,020	10,32,522	Dewas
Dhar	8,153	13,66,626	Dhar
Durg	8,537	23,98,497	Durg
East Nimar	10,779	14,32,855	Khandwa
Guna	11,065	13,09,451	Guna
Gwalior	5,214	14,14,948	Gwalior
Hoshangabad	10,037	12,65,970	Hoshangabad
Indore	3,8989	18,30,870	Indore
Jabalpur	10,160	26,45,232	Jabalpur
Jhabua	6,782	11,29,356	Jhabua
Mandla	13,269	12,91,313	Mandla
Mandsaur	9,791	15,55,481	Mandsaur
Morena	11,594	17,07,619	Morena
Narsingpur	5,133	7,84,523	Narsingpur
Panna	7,135	6,84,721	Panna
Raigarh	12,924	17,24,420	Raigarh
Raipur	21,258	39,02,609	Raipur
Raisen	8,466	8,77,369	Raisen
Rajgarh	6,154	9,92,315	Rajgarh
Rajnandgaon	11,127	14,39,524	Rajnandgaon
Ratlam	4,861	9,71,309	Ratlam
Rewa	6,314	15,50,140	Rewa
Sagar	10,252	16,46,198	Sagar
Satna	7,502	14,62,412	Satna
Sehore	6,578	8,40,427	Sehore
Seoni	8,758	9,99,762	Seoni
Shahdol	14,028	17,43,058	Shahdol
Shajapur	6,196	10,32,520	Shajapur
Shivpuri	10,278	11,31,933	Shivpuri
Sidhi	10,255	13,71,935	Sidhi
Sarguja	22,357	20,82,930	Ambikapur
Tikamgarh	5,046	9,40,699	Tikamgarh
Ujjain	6,091	13,86,465	Ujjain
Vidisha	2,742	9,71,097	Vidisha
West Nimar	13,450	20,26,317	Khargone

of the influence of Marathas and the death of Madhoji Scindia in 1799. Marathas were on the ascendant in Central India but later on the small states started coming into existence. These small states became the cause of perpetuation of British power in the country. Queen Ahilyabai Holkar of Indore, the Gau Maharani Rani Kamala Devi of Queen durgawat, etc., were some women rulers whose names have left an indelible imprint on Indian History for their outstanding rule. Madhya Pradesh as an Indian state came into being on 1 November 1956.

The State is surrounded by seven states. It is bounded by Rajasthan on the north west, by Uttar Pradesh on the north, by Bihar on the north-east, by Orissa on the east, by Andhra Pradesh and Maharashtra on the south and Gujarat on the west. About 23.3 per cent of the total population of the State belong to scheduled tribes. One-fifth of the total population of scheduled tribes in the country lives in Madhya Pradesh.

**Economy**

Agriculture is the mainstay of the state's economy as 76.8 per cent of the total population lives in rural areas. About 43.7 per cent area of the state is cultivable. Net irrigated area is 5.96 million hectares, which was 30 per cent of net sown area in 1991-96. Madhya Pradesh is the leading producer of oilseeds, pulses, soybean, gram and linseed. Wheat, rice, jowar, sugarcane, cotton, tur, mustard are the other principal crops.

Madhya Pradesh has entered the era of high-tech industries such

## NATIONAL NETWORK

as petrochemicals, electronics, telecommunications automobiles, etc. Madhya Pradesh is the first state in the country producing optical fibre for telecommunications needs. A large number of automobile industries have been established at Pithampur near Indore. Prominent industries in the public sector in the State are Bhilai Steel Plant, Bharat Heavy Electricals Limited at Bhopal, Bharat Aluminium Company at Korba, Security Paper Mill at Hoshangabad, Bank Note Press at Dewas, Newsprint Factory at Nehanagar and Alkaloid Factory at Neemuch. There are 22 textile mills in the State. An Air Cargo Complex, Indo-German Tool Room and an Inland Container Depot are being established at Pithampur.

The State is famous for its traditional handicrafts and handloom cloths manufactured at Chanderi and Maheswar. The State has a distinct place in the sphere of mineral production. At present, 25 types of minerals are being mined in the State.

The area under irrigation was 5.93 million hectares in 1995-96. Wells are the biggest source of irrigation covering 3.17 million hectare, while canals are irrigating an area of 1.79 million hectares. The installed capacity of power in the State at present is 3,816 MW of which 848.25 MW is hydel power.

### Transport

**Roads :** Total length of roads in the state was 97,343 km in 1995-96 including 76,614 km of metalled roads.

**Railways :** The main rail route linking northern India with southern India passes through Madhya Pradesh. Main Junctions in the State are Bhopal, Bilaspur, Bina, Gwalior, Indore, Itarsi, Jabalpur, Katni, Rattlam and Ujjain. The total length of rail routes in the State is 5,761.5 km. The divisional railways headquarters are at Bhopal, Rattlam, Jabalpur and Bilaspur.

**Aviation :** There are airports at Bhopal, Gwalior, Indore, Khajuraho and Raipur with regular scheduled air services to Mumbai and Delhi, Varanasi and Nagpur, Raipur and Bhubaneswar.

## Tourist Centres

Perfectly preserved medieval cities, remote and beautiful wildlife sanctuaries, unsurpassed natural beauty and some of India's most important and revered places of pilgrimage make Madhya Pradesh a traveller's delight. Gwalior, Shivpuri, Orchha, Khajuraho, Sanchi, Mandla, Pachmarhi, Bhedaghat, Bhimbetka, Kanha, Bandhavgarh, Panna, Pench and Satpura National Parks and legendary pilgrim centres of Ujjain, Chitrakoot, Maheswar and Omkareshwar are a few of the prominent centres of tourist interest in the State which attract a large number of Indian and overseas visitors for their historical heritage or natural beauty.

Besides, 16 more districts have been recently carved out. These include (1) Badwani, (2) Shyampur, (3) Dindori, (4) West Sarguja, (5) Jashpur, (6) Janigir, (7) Kobra, (8) Kanker, (9) Dantewada, (10) Katni, (11) Neemuch, (12) Umaria, (13) Mahasamund, (14) Dhamtari, (15) Harda and (16) Kavardha.

## Maharashtra

**Area :** 3,07,713 sq km; **Capital :** Mumbai  
**Population :** 7,89,37,187; **Principal Language :** Marathi; **Governor :** P.C. Alexander; **Chief Minister :** Vilas Rao Deshmukh.

### History and geography

The first well-known rulers of Maharashtra were the Satavahanas (230 BC to 225 AD), who were the founders of Maharashtra, and have left a plethora of literary, epigraphic, artistic and archaeological evidence. This epoch marks tremendous development in every field of human endeavour.

Then came the *Vakatakas* who established a pan-Indian empire. Under them Maharashtra witnessed an all round and glorious development in the fields of learning, arts and religion. After brief interlude of the *Kalachuri* dynasty, the important rulers were the *Chalukyas* followed the *Rashtrakutas* and the *Yadavas* apart from *Shilaharas* on the coast. The *Vadavas*,

their court-language, extended their over large parts of the Deccan.

The administrative evolution of the state of Maharashtra is the outcome of the linguistic unification of the states of India, effected on 1 May 1960. The State was formed by bringing together contiguous Marathi speaking areas, which previously belonged to four different administrative districts: the district between Daman and Diu formed part of the original British Bombay Province; five districts of the Nizam's Hyderabad; eight districts in the south

of the Central Provinces (Madhya Pradesh) and a sizeable number of petty native ruled state enclaves lying enclosed within the above areas, which later merged with adjoining districts.

Located in the north centre of Peninsular India, with a command of the Arabian Sea through its port of Mumbai, Maharashtra has a remarkable physical homogeneity, enforced by its underlying geology. The dominant physical trait of the State is its plateau character. Satpuda ranges cover northern part of the State, while Ajanta and Satmala ranges run through central part of the

State. Arabian Sea flanks the western boundary of Maharashtra, while on the northern side there is Gujarat and Madhya Pradesh. On the southern side there is Karnataka and Andhra Pradesh. The State receives its rainfall mainly from south-west monsoon. There is heavy rainfall in the coastal region (around 2000 mm), scanty rains in rain shadow areas in the central part (about 500 mm) and moderate rains in eastern parts (around 1000 mm) of the State.

## Economy

About 61 per cent of the total workers in the State depend on agriculture and allied activities. Net irrigated area is about 32.87 lakh hectares. Principal crops grown in the State are rice, Jowar, bajra, wheat, fur, mung, urid, gram and other pulses. The State is a major producer of oilseeds. Groundnut, sunflower, soyabean are major oil seed crops. Important cash crops are cotton, sugarcane, turmeric and vegetables.

With its key location, linking the northern and southern parts of the country, Maharashtra has firmly established itself as India's most progressive State. The State has been identified as the country's industrial

## Population and headquarters of districts

District	Area in 000'sqkm	Population	Headquarters
Ahmednagar	17,048	3,373	Ahmednagar
Akola	10,574	2,214	Akola
Amravati	12,210	2,200	Amravati
Aurangabad	10,107	2,214	Aurangabad
Bhandara	9,321	2,108	Bhandara
Beed	10,693	1,822	Beed
Bombay City	69	3,175	Mumbai City
Bombay (Sub.) 534	6,751		Bandra
Buldhana	9,661	1,886	Buldhana
Chandrapur	11,443	1,772	Chandrapur
Dhule	13,150	2,536	Dhule
Gadchiroli	14,412	787	Gadchiroli
Jalgaon	11,765	3,188	Jalgaon
Jalna	7,718	1,364	Jalna
Kolhapur	7,685	2,990	Kolhapur
Latur	7,157	1,677	Latur
Nagpur	9,892	3,237	Nagpur
Nanded	10,509	2,330	Nanded
Nashik	15,530	3,851	Nashik
Osmanabad	7,569	1,276	Osmanabad
Parbhani	11,041	2,117	Parbhani
Pune	15,643	5,533	Pune
Alibag	7,152	1,825	Alibag
Ratnagiri	8,208	1,588	Ratnagiri
Sangli	8,572	2,209	Sangli
Satara	10,480	2,431	Satara
Kudal	5,307	832	Kudal
Solapur	14,895	3,231	Solapur
Thane	9,558	5,249	Thane
Wardha	6,309	1,067	Wardha
Yavatmal	13,582	2,077	Yavatmal
Nandurbar	4,933	1,063	Nandurbar
Washim	5,178	865,312	Washim

powerhouse and Mumbai, its capital as the centre position in the economy of Maharashtra. Food products, breweries, tobacco and related products, cotton textiles, textile products, paper and paper products, printing and publishing, rubber, plastic, petroleum and coal products, basic chemicals and chemical products, metal products and parts, machinery (except electrical machinery), electrical machinery, apparatus and appliances, and transport equipment and parts contribute substantially to the industrial production in the state.

In the year 1996-97, the manufacturing sector (registered and unregistered together) contributed 24 per cent to the total State income, while agriculture sector contributed 19.1 per cent.

Maharashtra State had an installed capacity of 11582 MW. By the end of June 1997, 29 major, 175 medium and about 1,961 state sector minor irrigation projects have been completed. Another 63 major, 115 medium and 706 minor irrigation projects are under construction. The gross irrigated area at the end of June 1997 was nearly about 33.15 lakh hectare. In the year 1997, Chandrapur Thermal Power Station (Unit No. 7 of 500 MW), 150 MW Pumped Storage Scheme and 6 MW Manikdoh Hydro Power Station were commissioned raising the total installed capacity of the State to 12238 MW. This includes 8231 MW MSEB's share, 1774 MW Tata's share, 500 MW BSES's 1990 MW Tarapur Atomic Power Centre's share and 1543 MW NTPC's share.

### Transport

**Roads :** Total length of roads in the State is 1,87,575 km consisting of 2,958 km of national highway, 32,359 km of state highways, 41,081 km of major district roads, 41,043 km of other district roads, and 70,134 km of village roads.

**Railways :** Maharashtra has 5,461 km of railway routes of which about 3,967 km is broad gauge, 542 km meter gauge and 952 km is narrow gauge.

**Aviation :** Maharashtra has a total of twenty-four Air fields/Airports. Out of these 17 are under the control of the Government of Maharashtra,

four are managed and controlled by the International Airport Authority/Airport Authority of India and the remaining three are manned and managed by the Ministry of Defence.

The Airports under the control of the State government are : Amaravati, Baramati, Chandrapur, Dhule, Gondia, Jalgaon, Karad, Kolhapur, Kinwat, Latur, Nanded, Osmansabad, Phaltan, Ratnagiri, Sangli, Sholapur, and Yavatmal.

**Ports :** Mumbai is the major port of Maharashtra. There are 48 minor ports in the state.

## Manipur

**Area :** 22,327 sq km; **Population :** 18,37,100  
**Capital :** Imphal; **Principal Language :** Manipuri  
**Governor :** Ved Marwah; **Chief Minister :** Nipamacha Singh.

### History and geography

Not much of recorded history of Manipur is available though it has been in existence since time immemorial. According to the historical records, Pakhangba ascended the throne of one of the seven main principalities in 33 AD and founded a long dynasty which ruled Manipur till 1891. Manipur came under the British Rule in 1891 and later it was merged in the Indian Union as part 'C' State on 15 October 1949. In 1950-51, an advisory body of government was introduced. In 1957 this was replaced by a Territorial Council of 30 elected and two nominated members. Later in 1963, a Legislative Assembly of 30 elected and three nominated members was established under the Union Territories Act, 1963. Manipur attained full-fledged statehood on 21 January 1972. Geographically the State is divided into two parts the hills comprising of five districts and the plains with three districts. It is bounded by Upper Burma (Myanmar) on the east, the Chin Hills of Burma (Myanmar) on the south-east, Nagaland on the north, Assam on the west and Mizoram on the south and south-west.

### Economy

Agriculture is the major source of livelihood in the state and is the first around which the state's

**Area, population and headquarters of districts**

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Bishnupur	496	1,78,903	Bishnupur
2. Chandel	3,313	70,737	Chandel
3. Churachandpur	4,570	1,76,043	Churachandpur
4. Imphal	1,228	7,07,184	Imphal
5. Senapati	3,271	2,06,933	Senapati
6. Tamenglong	4,391	85,572	Tamenglong
7. Thoubal	514	2,90,393	Thoubal
8. Ukhrul	4,544	1,09,952	Ukhrul

onomy revolves. From a modest beginning in 1966, the State has now got sufficient number of trained manpower of its own to implement various schemes and programmes in agriculture. Production of rice has gone upto 2,225 kg per hectare for fish yielding variety.

**Forest**

Total area under forest cover is 17,621 sq km of which 1,463 sq km fall under reserved forests while 4,171 sq km is protected forests and 987 sq km are unclassified forests. Manipur is the abode of Shirody Lily, the paradise flower which not found elsewhere in the world. Manipur is known for its bio-diversity having a number of rare plants, trees and wildlife. It is also the home of the famous antlered deer, called Sangai, one of the rarest species in the world.

Within a short period of one and a half decades of introduction of major and medium irrigation schemes in the State, remarkable progress has been made bringing 59,100 hectare under major and medium irrigation programme. The installed capacity was 12,447 KW as on 31 March 1996. As per 1991 census, 1,749 villages have been electrified until 31 March 1996.

Manipur is an industrially backward, primarily due to its locational disadvantages. However, it is now making rapid strides towards industrialisation and has registered 7,686 small scale industrial units by March 1993.

**Transport**

Roads : National highways No. 39 and 53

pass through Manipur for a distance of 437.67 km. The State has 5,816 km of roads both metalled and unmetalled as on 31 March 1993.

**Railways :** The State is now included in the railway map of India with the opening of rail head at Jiribam in May 1990.

**Aviation :** Imphal is the only airport which is linked with other

stations in the region by Indian Airlines. The Indian Airlines flights connect Imphal to Dimapur, Silchar and Calcutta. NEPC Airlines has started operation on Imphal-Guwahati sector with effect from 1 August 1995.

**Meghalaya**

**Area :** 22,429 sq km; **Population :** 17,74,773; **Capital :** Shillong; **Principle Language :** Khasi, Garo and English; **Governor :** M.M. Jacob; **Chief Minister :** B.B. Lyndoh.

**History and geography**

Meghalaya was created as an autonomous States within the State of Assam on 2 April 1970. The full-fledged State of Meghalaya came into existence on 21 January 1972. It is bound on the north and east by Assam and on the south and west by Bangladesh. Meghalaya literally meaning the abode of clouds is essentially a hilly state. It is now divided into seven administrative districts. They are : Jaintia Hills, East Garo Hills, West Garo Hills, East Khasi Hills, West Khasi Hills, Rairhmoi and South Garo Hills districts. These are predominately inhabited by the Khasis, the Jaintias and the Garos.

A number of rivers, none of them navigable, drain the mountainous state. The Manda, the Daming and the Jinjiram flow towards the north while the Ringge and the Ganol flow in the western direction. Rivers flowing to the south are the Simsang which is the largest river in Garo Hills and the Bugi.



## Economy

Meghalaya like most of the states of India is basically an agricultural State in which about 80 per cent of its total population depend primarily on agriculture for their livelihood. The hilly terrain and other topographical features, however, do not offer much scope for further extending the areas under foodgrain crops. The State has a vast potential for developing horticulture due to agroclimatic variations which offer much scope for cultivation of temperate, sub-tropical and tropical fruits and vegetables.

Besides the major foods crops of rice and maize, Meghalaya is renowned for its oranges (Khasi Mandarin), pineapple, banana, jackfruits, temperate fruits like plum, pears and peaches etc. Cash crops, popularly and traditionally cultivated include potato, turmeric, ginger, etc.

The number of small scale industrial units covering service industry, bakeries, furniture making, iron and steel fabrication, tyre retreading, spice, etc., is increasing and the government is giving greater thrust to entrepreneurship development. The Meghalaya Industrial Development Corporation (MIDC) is assisting the industrial units by way of term loans and also by participating in equity capital. Mineral wealth of Meghalaya include coal, silimanite, limestone, dolomite, fireclay, felspar, quartz and glass-sand. The total estimated reserve of coal in the State is 562 million tonnes and that of limestone is around 4,500 million tonnes.

## Forest

A considerable portion of the area of Meghalaya is under forests. Total forest cover in the State is 15,769 sq km which corresponds to 70.3 per cent of the geographical area of the State. The principle timber species are sal, Makrisal, Khasi Pines, Birch, Teak, Tilachap, Garmani, Sam, Poorna, Khokan, etc. Besides timber, the State is very rich in bamboo, reeds, cane, medicinal herbs and shrubs. The State is the storehouse of biogenetic material. A large number of orchids grow

## Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarter
1. East Garo Hills	2,603	1,88,830	Williamnaga
2. East Khasi Hills	2,748	5,37,906	Shillong
3. Jaintia Hills	3,819	2,20,473	Jowai
4. West Garo Hills	3,714	4,03,027	Tura
5. West Khasi Hills	5,247	2,20,157	Nongstion
6. Ri-Bhoi	2,448	1,27,312	Nongpoh
7. South Garo Hills	1,850	77,073	Baghmara

naturally in the State. Among the fauna, Meghalaya is the home of cats from Royal Bengal Tiger the clouded leopard, leopard cat, wild cat, etc. The State is also the home of the binturong (Arctictis binturong), a very rare animal.

## Wild life

Meghalaya is also rich in wildlife. There are elephants, tigers, bears, wild boars, leopard, golden cats, leopard cats and jungle cats. There are also many rare and interesting birds including the horribills, partridges, pheasants, teals, snipe, geese, ducks and quails. All these are protected by law. The State has two national parks, viz, the Nokrek National Park and the Balpakram National Park and two wildlife sanctuaries, namely the Nongkhyllem Wildlife Sanctuary and Siju Wildlife Sanctuary.

## Festivals

Ka Pamblang Nongkrem popularly known as Nongkrem dance is one of the most important festivals of the Khasis. It is a five day religious festival held annually at Smit village 11 km from Shillong, the headquarters of the syiem (chief) Khyrim. The festival is held as a thanksgiving ceremony to God Almighty for the harvest and pray for peace and prosperity.

## Transport

Roads : Three national highways pass through Meghalaya for a distance of 456.54 km. The State had 6,707 km of both surfaced and unsurfaced road in 1996-97.

Railways : The State is not connected by railway network.

**Aviation :** The only airport in the State at mroi is located some 35 km from Shillong.

## Government

**Governor :** M.M. Jacob **Chief Secretary :** W.T. Syiem; **Chief Minister :** B.B. Lyndoh **Jurisdiction :** Falls under the jurisdiction **Speaker :** E.K. High Court : of Guwahati High Court. here is a High Court Bench.

## Mizoram

**Area :** 21,081 sq km; **Population :** 6,89,756; **Capital :** Aizawl; **Principal Languages :** Mizo and English; **Governor :** A. Padmanaban; **Chief Minister :** Zoramthanga.

## History and geography

Mizoram is a mountainous region which became the 23rd state of the Indian Union in February 1987. It was one of the districts of Assam till 1972 when it became a Union Territory. After being annexed by the British in 1891, for the first few years, Lushai-Hills in the north remained under Assam while the southern half remained under Bengal. Both these parts were amalgamated in 1938 into one district called Lushai Hills District under the Chief Commissioner of Assam. With the Implementation of the North-Eastern Reorganisation act in 1972, Mizoram became a Union Territory and as a sequel to the signing of the historic memorandum of settlement between the Government of India and the Mizo National Front in 1986, it was granted statehood on 20 February 1987. Sandwiched between Myanmar to the east and the south and Bangladesh in the west, Mizoram occupies an area of great strategic importance in the north-eastern corner of India.

## Economy

About 64 per cent of the people of Mizoram are engaged in agricultural pursuits. The main pattern of agriculture followed is jhum or shifting cultivation. Out of the estimated potential available area of 4.4 lakh hectares for

horticulture, the area put under plantation is around 25,000 hectares only. The main horticulture crops are oranges, lemon, kagzi lime, passion fruits, halkora jamir, pineapple and papaya. Other crops are sugarcane, tapioca and cotton. The ultimate surface irrigation potential is estimated at 70,000 hectares of which 45,000 hectares is under flow and 25,000 hectares for river lift irrigation. The irrigated area has now gone up to 7,260 hectares by constructing and completing 30 pucca minor irrigation projects for raising double and triple crops in a year.

The entire Mizoram is a Notified Backward Area and is categorised under 'No Industry District'. However, concerted efforts were made in the last decade to accelerate the growth of industries in Mizoram. For the development of industries in the State, the Mizoram government framed the industrial policy of Mizoram in 1989. In the policy resolution priority industries have been identified. These are agro and forest-based industries, followed by handloom and handicrafts, electronics, consumer industries. Sericulture is operating at Aizawl with two full-fledged wings, viz, handloom and handicrafts wing and geology and mining wing.

## Transport

Total road length in the State is 4,787 km. National Highway No. 54 links Tuipang the southern most district of Mizoram to Silchar town in Assam on the border of Mizoram. There is skeleton rail service though rail link in the State had been established at Bairabi. Aizawl, the capital town of the state is air linked. Mizoram State transport besides running passenger services in 33 routes including two inter-state services to Silchar in Assam and Shillong, also provides goods carriages on hire and also functions as Railway Out Agency for Silchar railway station in Cachar district of Assam.

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Aizole	12,581	4,78,465	Aizole
2. Chintuapue	3,957	876	Seyha
3. Lunglay	4,536	1,11,415	Lunglay

## NATIONAL NETWORK

### Tourist Centres

The hilly city Aizawl located at nearly 4,000 feet above sea-level, is a religious and cultural centre of Mizoram where indigenous handicrafts are also available. Champhai Forest around 60 km from Aizawl and 10 km from the beautiful tourist resort of Situal where modern picnic facilities are being developed. Vantawng falls are the highest and most beautiful waterfalls in Mizoram.

### Nagaland

**Area :** 16,579 sq km; **Population :** 12,09,546;  
**Capital :** Kohima; **Principal Languages :** Angami, Ao, Chang, Konyak, Lotha, Sangtam, Sema and Chakhesang; **Governor :** O.P. Sharma; **Chief Minister :** S.C. Jamir

### History and geography

Nagas are basically tribal people and every tribe had its own effective system of self-governance from time immemorial. In the 12th and 13th centuries, gradual contact with the Ahoms of present day Assam was established but this did not have any significant impact on the traditional Naga way of life. However, in the 19th century the British appeared on the scene and ultimately the area was brought under British administration. After Independence this territory was made a Centrally administered area known as Naga Hills Juensay area in 1957, administered by the Governor of Assam. This failed to satisfy the popular aspirations and unrest began. Hence, in 1961 this was renamed as Nagaland and given the status of State of the Indian Union which was formally inaugurated on 1 December 1963. Situated in the extreme north-east of the country, Nagaland is bounded by Arunachal Pradesh in the north, Assam in west, Manipur in south and Burma (Myanmar) in the east.

### Economy

Agriculture is the main occupation of 90 per

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Kohima	4,041	3,87,587	Kohima
2. Mokokchung	1,615	1,58,374	Mokokchung
3. Mon	1,786	1,49,699	Mon
4. Phek	2,026	1,02,156	Phek
5. Tuensang	4,228	2,32,906	Tuensang
6. Wokha	1,628	82,612	Wokha
7. Zunheboto	1,255	97,218	Zunheboto
8. Dimapur	-	-	Dimapur

cent of population in the State. Rice is the important foodgrain. Area under jhum cultivation is about 74,040 hectare and under terraced cultivation there was 61,060 hectare during 1994-95.

The process of industrialisation in Nagaland is at nascent stage. The Nagaland Industrial Development Corporation is the premier promotional organisation in providing guidance and capital assistance to entrepreneurs.

Minor irrigation works are mostly meant to divert small hill streamlets to irrigate valleys used for rice cultivation. Under minor irrigation, surface minor irrigation covered 1,290 hectare and ground water covered 39 hectare during 1994-95. Number of electrified villages stands at 1,200. Nagaland has achieved cent per cent electrification of rural areas which is a stupendous achievement by any standards. A 24 megawatt hydro-electric project is under erection at Likimro.

### Transport

**Roads :** Road network consists of national, state and district roads with total length of 9,351 km. The Nagaland State Transport operates on 111 routes daily with a total route of 12,932 km.

**Railways/Aviation :** Dimapur is the only place where rail and air services are available. There is a bi-weekly Indian Airlines Boeing service connecting Dimapur with Guwahati and Calcutta.

### Orissa

**Area :** 1,55,707 sq km; **Population :** 3,16,59,736; **Capital :** Bhubaneswar; **Principals**

Language : Oriya; Governor : M.M. Rajendran;  
Chief Minister : Navin Patnayak.

## History and geography

Orissa, was known as Kalinga in ancient days. In the third century BC (261 BC). Ashoka the Mauryan emperor, sent a powerful force to conquer Kalinga which offered stubborn resistance. Kalinga was subdued but the carnage which followed, struck Ashoka with remorse and decided to shun warfare for good. After the death of Ashoka, Kalinga regained its independence. In the second century BC, it became a powerful country under Kharavela. With the death of Kharavela, Orissa passed into obscurity. In the fourth century

AD, Samudragupta invades Orissa which lay astride his path and overcame resistance offered by five of its kings. In 610 AD, Orissa came under the sway of King Sasanka. After Sasanka's death, Harsha conquered Orissa.

Orissa had its own rulers (Ganga dynasty) in the seventh century AD. In 795 AD, Mahasivagupta Yajati II came to the throne and with him began the most brilliant epoch in the history of Orissa. He united Kalinga, Kangada, Utkal and Koshala in the imperial tradition of Kharavela. King Narasingha Dev of this dynasty is known to have built the famous Kanak sun temple.

Orissa was made into a separate province on 1 April 1936. After Independence, princely states in and around Orissa surrendered their sovereignty to the Government of India. By the States Merger (Governor's provinces) Order, 1949 the princely states of Orissa were completely merged with the state of Orissa in January 1949.

Orissa is situated in the north-eastern part of the Indian peninsula extending from 17.49° N to 22.34° N latitude and from 81.29° E to 87.29° longitude. It is bound by the Bay of Bengal on the east, West Bengal on the North-east, Bihar on the north, Madhya Pradesh on the West and Andhra Pradesh on the South. The state may be broadly divided into four geographical regions the northern plateau, central river basin, eastern hills and coastal plains.

## Economy

Like most of the states of the country Orissa's economy is also dominated by the agriculture. Sixty-four per cent of the working population is engaged either directly or indirectly in this sector. Rice is the main crop and its production during the year 1996-97 was 44.37 lakh metric tonnes.

## Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Angul	6,347	9,61,037	Angul
2. Balasore	3,706	16,96,583	Balasore
3. Bolangir	6,552	12,30,938	Bolangir
4. Boudh	4,289	3,17,622	Boudh
5. Bhadrak	2,788	11,05,834	Bhadrak
6. Bargarh	5,832	12,07,172	Bargarh
7. Cuttack	3,915	19,72,739	Cuttack
8. Deogarh	2,781	2,34,238	Deogarh
9. Ganjam	8,033	27,04,056	Chatrapur
10. Dhenkanal	4,597	9,47,870	Dhenkanal
11. Gajapati	3,056	4,54,708	atakhemundi
12. Jagatsinghpur	1,759	10,14,242	Jagatsinghpur
13. Jajpur	2,885	13,85,177	Panikoti
14. Jharsuguda	2,202	4,46,726	Jharsuguda
15. Keonjhar	8,336	13,37,026	Keonjhar
16. Kalahandi	8,197	11,30,903	Kalahandi
17. Koraput	8,534	10,29,935	Koraput
18. Kendrapara	2,546	11,49,501	Kendrapara
19. Khurda	2,888	15,02,014	Khurda
20. Mayurbhanja	10,410	18,84,580	Baripara
21. Malkangiri	6,115	4,21,917	Malkangiri
22. Nawarangpur	5,135	8,45,659	Nawarangpur
23. Nayagarh	3,954	7,82,647	Nayagarh
24. Nawapara	3,408	4,69,482	Nawapara
25. Puri	3,055	13,05,355	Puri
26. Kandhamal	6,004	5,46,281	Phulbani
27. Rayagada	7,585	7,13,984	Rayagada
28. Sambalpur	6,702	8,09,017	Sambalpur
29. Sundergarh	9,942	15,73,617	Sundergarh
30. Sonepur	2,284	4,76,815	Sonepur

Sugarcane is the main cash crop and its cultivation is increasing year by year. Production of ilseeds during 1996-97 was 5.52 lakh metric tonnes.

The irrigation potential has been created through major, medium, minor lift irrigation and water harvesting projects up to 23.38 lakh hectares by 1996-97. Participation in irrigation management. The Government is giving emphasis on more installation of drip irrigation system.

The availability of power during 1997-98 was 10,203.369 million units. Power deficit is continuing in the State because of accelerated pace of industrialisation and rural electrification. To attract foreign and domestic entrepreneurs in the power sector, the state government is taking steps to provide them some basic requirements at reasonable rates.

By the end of Seventh Plan there were 231 large and medium industries in the state. The Industrial Promotion and Investment Corporation of Orissa (IPICOL) and the Industrial Development Corporation of Orissa Limited (IDCOL) are mainly operating on industrial growth in the State and giving financial assistance to the large and medium industries. Other corporations like IDCO, SFC are playing vital role the promotion of industries in the state. In the year 1995-96 also 507 new small-scale industries have been set up. In Sukinda Daitari Area a complex of steel plants is under construction which will be one of the major centres of the steel industry in the country.

### Transport

**Roads :** The length of different categories of roads in the state is as follows : 1,625 km National Highway, 67 km express highway, 4,360 km state highways, 14,160 km village road, 20,426 km Panchayat Samiti road, 1,39,968 km Grampanchayat road, 7,030 km forest road and 10,280 km municipal road.

**Railways :** The total Railways route length in the state by the end of 1995-96 was 2,178 km consisting of 2,035 broad-gauge and 143 km narrow-gauge lines.

**Aviation :** Bhubaneswar airport has been declared as customs airport in 1994. The extension and modernisation of this airport is in progress. Direct link is available from Bhubaneswar to places like Delhi, Calcutta, Chennai, Nagpur and Hyderabad. There are 17 air strips and 17 helipads, at different places of the State.

**Ports :** Paradeep is the only major port of the state. The state government has decided to develop Gopalpur port into an all weather port and to improve its cargo-handling capacity. The fishing harbours are functioning at Dhamra, Chudamani, Bahabalpur and fishing jetties are functioning at Krushna Prasad, Satpada and Lalitapada. The state government has decided to set up a Mega Port at Dhamra by private investment which would come into operation by 2001 AD.

### Tourist centres

Bhubaneswar is famous for the Lingaraj Temple while Puri is famous for the temple of Lord Jaganath and its beautiful sea beach. Other places of tourist interest are Chilika Lake, Dhauli Buddhist Temple, Udaygiri-Khandagiri.

Saptasjya scenic view of hill-beds, Ushakothi Wildlife Sanctuary, Gopalpur Sea beach etc.

## Punjab

Area: 50,362 sq.km; Population: 2,02,81,969; Capital: Jaipur; Principal language: Punjabi; Governor: Lt. Gen. (Retd.) J.F.R. Jacob; Chief Minister: Sardar Parkash Singh Badal.

### History and geography

Ancient Punjab formed part of the vast Indo-Iranian region. In its chequered history, it saw the rise and fall of the Mauryans, Bactrians, Greeks, Kushans and Guptas. Medieval Punjab saw a supremacy of the Muslims. Ghaznavi was followed by the Ghoris, the Slaves, the Khiljis, the Tughlaks, the Lodhis and the Mughals. Fifteenth and sixteenth centuries mark a period of watershed in the history of Punjab. Through teachings of Guru Nanak, Bhakti movement received a great impetus. Prima facie, Sikhism was a socio-religious

movement which was more interested in fighting evils in religion and society. It worked as an amalgamating force between the fundamentalistic elements of Hindu and Muslim religion. It was Guru Gobind Singh, the tenth Guru who transformed the Sikhs into the Khalsa. They rose to challenge tyranny and after centuries of servitude established a human Punjabi Raj based on secularism and patriotism. Ranjit Singh has in the words of a Persian writer changed Punjab from *Madam-Kada* to *Bagh-i-bahisht*, from the abode of sorrow to the garden of paradise. But soon after his death, the entire edifice collapsed on account of internal intrigues and British machinations. After two abortive Anglo-Sikh wars, Punjab was finally annexed to the British Empire in 1849.

Struggle against British rule had begun long before Mahatma Gandhi's arrival on the scene. Revolt was expressed through religious movement of a revivalist or reformist character. First, it was the Namdhari sect which believed in self-discipline and self-rule. Later, it was Lala Lajpat Rai who played a leading role in the Freedom Movement. Punjab was in the vanguard of India's freedom struggle on all fronts in India and abroad. Punjab's tale of woe did not culminate with

Independence and it had to face the holocaust of Partition along with displaced persons with harrowing memories. Besides their rehabilitation, there was the task of reorganisation of the State.

Eight princely states of East Punjab were grouped together to form one single state called PEPSU-Patiala and the East Punjab States Union with Patiala as its capital. PEPSU state was merged with Punjab in 1956.

Situated in north-western corner of the country, Punjab the land of five rivers is bound on the west by Pakistan, on north by Jammu and Kashmir, on north-east Himachal Pradesh and on south by Haryana and Rajasthan.

## Economy

Agriculture is the mainstay of Punjab's economy. Nearly 84 per cent of the total geographical area of the State is under cultivation. Punjab alone contributed 68 per cent of wheat and 35 per cent of rice to the central pool in 1997-98 marketing year, despite the fact that it comprises only 1.53 per cent of the total area of the country.

There are 1.95 lakh small scale units in the state. These units produce bicycle parts, sewing

machines, hand tools, machine tools, auto parts, electronic items, sports goods, surgical and leather goods, hosiery, knitwear, nuts and bolts, textiles, sugar, vegetable oil, etc., giving employment to 8.34 lakh persons. Besides there are 615 large and medium scale units employing more than 2.20 lakh persons. Punjab is emerging as a major growth centre in electronics.

The construction of Bhakra Nangal Complex, including Bhakra Dam, Bhakra Main Line, Nangal Hydrel channel, Ganguwal and Kotla Power House, Hanke Barrage, Sirhind Feeder, remodelling of Madhopur Headworks into Barrage, etc., has been some of the

## Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Amritsar	5,075	25,03,165	Amritsar
2. Bathinda	3,377	9,79,566	Bathinda
3. Ferozpur	1,472	4,51,406	Ferozpur
4. Fatehgarh Sahib	1,180	4,62,693	Fatehgarh Sahib
5. Firozpur	5,865	16,06,092	Firozpur
6. Gurdaspur	3,570	17,57,808	Gurdaspur
7. Hoshiarpur	3,310	12,98,185	Hoshiarpur
8. Jalandhar	2,658	16,47,492	Jalandhar
9. Kapurthala	1,646	6,48,516	Kapurthala
10. Ludhiana	3,744	24,26,883	Ludhiana
11. Mansa	2,174	5,80,397	Mansa
12. Moga	1,672	6,26,391	Moga
13. Muktsar	2,596	6,53,079	Muktsar
14. Nawanshahr	1,258	5,31,253	Nawanshahr
15. Patiala	3,627	15,21,330	Patiala
16. Roop Nagar	2,117	9,02,264	Roop Nagar
17. Sangrur	5,021	16,85,449	Sangrur

major hydro-electric projects which have played a significant role in considerably enhancing the irrigation and power potential of the State. On the irrigation front, about 60 per cent of the total irrigated land is served by tubewells, the remaining 40 per cent is irrigated through canals, etc.

Presently, the Punjab State Electricity Board has 2,257 MW of installed capacity from its own power stations comprising of 547 MW of hydro and 1,710 MW of thermal power plants. Besides, it has a share of 1281.43 MW from Bhakra-Nangal Beas complex, Dehar Power Plant and Pong Power Plant. The State's Micro Hydel Schemes include Nidampur project, Daudhar, Rohti and Thumbi projects. The first thermal project constructed in the Punjab was the Guru Nanak Dev Thermal Plant at Bathinda. The second at Ropar, known as Guru Gobind Singh Super Thermal Plant, is one of the few super thermal plants in India.

### Transport

**Roads :** The road length in Punjab is 39,950 km out of which provincial roads are 38,962 km while national highways are 988km. All villages of the state have been linked with metalled road.

**Railways :** The length of the rail routes passing through the State is around 3,715.47 km. Rail communication with Pakistan also emanates from unajb (Amritsar)

### Aviation

There are three Civil Aviation Clubs at Bathinda, Ludhiana and Patiala; one domestic airport at Chandigarh; and International Airport at Amritsar.

### Festivals

Besides festivals of Dusshera, Diwali, Holi, other important festivals/fairs/melas are Baisakhi, Holi Mohalla, Basant Maghi Mela etc.

## Rajasthan

Area: 3,42,239 sq. km.; Population: 4,40,05,990; Capital: Jaipur; Principal Languages: Hindi and Rajasthan; Governor: Justice Anshuman

## History and geography

Rajasthan, the second largest State in India area-wise was known as Rajputana or the home of Rajputs - a martial community who ruled over this area for centuries, in the pre-independence era.

Rajasthan gained historical prominence in the sixth - seventh century A.D. when Rajputs emerged as a dominant martial race. Chauhans dominated Rajput affairs from seventh century and by 12th century they had become an imperial power. After the Chauhans, it were the Guhilots of Mewar who controlled the destiny of the warring tribes. Besides Mewar, the other historically prominent states were Mewar, Jaipur, Bundi, Kota, Bharatpur and Alwar. Other states were only offshoots of these. All these states accepted the British Treaty of Subordinate Alliance in 1818 protecting the interest of the princes. This naturally left the people discontented.

After the revolt of 1857, the people united themselves under the leadership of Mahatma Gandhi to contribute to the freedom movement. The process of uniting scattered states commenced from 1948 to 1956 when the States Reorganisation Act was promulgated. First came Matsya Union (1948) consisting of a fraction of states. Slowly and gradually other states merged with this Union. By 1949, major states like Bikaner, Jaipur, Jodhpur and Jaisalmer joined this Union making it United State of Greater Rajasthan. Ultimately in 1958, the present State of Rajasthan formally came into being, with Ajmer state, the Abu Road Taluka and Sunet Tappa joining it.

The entire western side of the state borders with Pakistan, while Punjab, Haryana, Uttar Pradesh and Madhya Pradesh bind Rajasthan in north, north-east and south-east. In the south-west there is Gujarat.

## Economy

Total cultivable area in the State is 206.91 lakh hectares (1996-97). The estimated food grain production is 163.65 lakh tonnes. Principal crops cultivated in the State are rice, barley, jowar, millet, oilseeds, pulses and tobacco

Endowed with a rich vibrant culture, Rajasthan is also rich in minerals and is fast emerging on the industrial scenario of the country. Some of the important central undertakings are Zinc Smelter Plant at Devari (Udaipur), Copper Plant at Khetri Nagar (Jhunjhunu) and Precision Instrument Factory at Kota. Small-scale industrial units numbering 1.91 lakh with a capital investment of Rs. 21.84 crore provided employment potential to about 7.39 lakh persons in the

State in 1997-98. Major industries are textiles and woollens, sugar, cement, glass, sodium plants, oxygen, vegetable dyes etc. Rajasthan has rich deposits of zinc concentrates, emerald, garnet, gypsum, silver ore, asbestos, feldspar and mica.

Irrigation potential has been raised by 66,420 hectares during 1996-97 and the total irrigation potential of the State is 41.35 lakh hectares. The state purchased 9531.273 million units of power in addition to its own generation of 9624.985 million units of power during 1996-97.

### Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarters
1. Ajmer	8,481	17,29,207	Ajmer
2. Alwar	8,380	22,96,580	Alwar
3. Banswara	5,037	11,55,580	Banswara
4. Barmer	28,387	14,35,222	Barmer
5. Bharatpur	5,066	16,51,584	Bharatpur
6. Bhilwara	10,455	15,93,128	Bhilwara
7. Bikaner	27,244	12,11,140	Bikaner
8. Bundi	5,550	7,70,248	Bundi
9. Chittorgarh	10,856	14,84,190	Chittorgarh
10. Churu	16,830	15,43,211	Churu
11. Dholpur	3,084	7,49,479	Dholpur
12. Dungarpur	3,770	8,74,549	Dungarpur
13. Ganganagar	20,634	26,22,777	Ganganagar
14. Jaipur	14,068	47,22,551	Jaipur
15. Jaisalmer	38,401	3,44,517	Jaisalmer
16. Jalore	19,110	11,10,563	Jalore
17. Jhalawar	6,219	9,56,971	Jhalawar
18. Jhunjhunu	5,928	15,82,421	Jhunjhunu
19. Jodhpur	22,850	21,53,483	Jodhpur
20. Kota	12,436	20,30,831	Kota
21. Nagaur	17,718	21,44,810	Nagaur
22. Pali	12,387	14,86,432	Pali
23. Sawai Madhopur	10,527	19,63,246	Sawai Madhopur
24. Sikar	7,732	18,42,914	Sikar
25. Sirohi	5,136	6,54,029	Sirohi
26. Tonk	7,194	9,75,006	Tonk
27. Udaipur	17,279	28,89,301	Udaipur
28. Dausa	3,40,571	9,92,253	Dausa
29. Baran	6,955	6,36,526	Baran
30. Rajsamand	4,684	8,21,923	Rajsamand
31. Hanumangarh <sup>1</sup>	-	-	Hanumangarh
32. Karoli <sup>2</sup>	-	-	Karoli

<sup>1</sup> A new district, Figures in Ganganagar

<sup>2</sup> A new district

### Transport

**Roads :** Total length of roads was 74, 947 km as March, 1998.

**Railways :** Jodhpur, Jaipur, Bikaner, Kota, Sawai Madhopur and Bharatpur are main rail junctions of the State.

**Aviation :** Regular air services connect Jaipur, Jodhpur and Udaipur with Delhi and Mumbai.

### Festival

Rajasthan is land of festival and fairs. Besides the national festivals of Holi, Deepawali, Vijayadashmi, Muharram, Christmas etc., birth anniversaries of gods and goddesses, saintly figures, folk heroes and heroines are celebrated. Important fairs are Teej, Gangaur (Jaipur), annual Urs of Ajmer Sharif and Galiakot etc.

### Tourist centres

Jaipur, Jodhpur, Udaipur, Bikaner, Mount Abu, Sariska Tiger Sanctuary in Alwar, Keoldeo National Park at Bharatpur, Ajmer, Jaisalmer, Pali and Chittorgarh are important places of tourist interest in the state known for its rich historical heritage.



## Sikkim

Area: 7,06 sq. km.; Population : 4,04,57;  
Capital: Gangtok; Principal languages: Lepcha,  
Bhutia, Nepali and Limbu; Governor : Chaudhury  
Ranbir Singh; Chief Minister : Pawan Chamling.

### History and geography

The early history of Sikkim starts in the 13th century with the signing of a brotherhood treaty between the Lepcha Chief Thekong-Thek and Tibetan prince Khe-Bhumsa at Kavi in north Sikkim, and moves on to the historical visit of revered saints to Yuksam in 1641 in west Sikkim and to the beginning of the Namgyal dynasty in Sikkim in 1642. With the advent of the twentieth century, events in Sikkim saw the state pass democracy and become an integral part of the Indian Union in 1975.

Sikkim lies in the heart of the towering Eastern Himalayas and is bounded by Nepal in the west, Bhutan in the south east, Tibet in the north and north east and the district of Darjeeling (West Bengal) in the south. Sikkim has a varied topography with the elevation ranging from 800 feet. Most of the 7,300 sq km of Sikkim consists of mountainous terrain, interspersed with ravines and valleys. The two main rivers are Teesta originating from the Tsotham Lako in North Sikkim, and Pangtong originating from the Rathong Glacier in West Sikkim. Khanchenjunga situated on Sikkim's western border with Nepal dominates the land with its awe-inspiring beauty and majesty and its splendid height of 28,208 feet which makes it the third highest mountain in the world.

### Economy

The state's economy is basically agrarian. Maize, rice, wheat, potato, large cardamom, ginger and orange are the principal crops. Sikkim has the largest area and highest production of cardamom in India. Ginger, potato, orange and off-season vegetables are other cash crops.

Sikkim has been declared

industrially backward and the Department of Industries has launched a number of promotional schemes. In order to plan strategy to develop industrial climate in the state, a new industrial policy has been formulated from 10 April, 1996. The Department of Industries lays emphasis not only on the promotion and development of various small industries, but is also generating employment opportunities by transforming the unemployed into local successful entrepreneurs.

During the Seventh Plan period (1985 to 1990) many new irrigation schemes for providing assured water both for kharif and rabi cropping were taken up and to avoid damages to open channels due to landslide, concrete hump pipes and HDPE pipes in sinking areas, were used extensively within this period. An additional irrigation potential of 6.39 hectares was created and a corresponding 5,530 hectares of potential was utilised. In collaboration with the Agricultural Finance Corporation, the State has conceived a master plan for irrigation.

### Transport

Roads : Gangtok is connected by road with Darjeeling, Kalimpong, Siliguri and other centres and also with all the district headquarters within Sikkim. Road length in the state is 2,383 km.

Railway : The two closest railway stations are Siliguri (114 kms) and New Jalpaiguri (125 kms) connecting Calcutta, Delhi, Guwahati, Lucknow and other important cities in India.

Aviation : There is no airport in Sikkim. Bagdogra airport in West Bengal which caters to the state is 124 kms and approximately five hours drive from Gangtok. Bagdogra has regular Indian Airlines and Jet Airways services from Calcutta and Delhi and also the North-East.

### Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarters
1 East	954	1,78,452	Gangtok
2 North	4,226	31,240	Mangan
3 South	750	98,604	Namchi
4 West	1,166	98,161	Gyalshing

## Tourist centres

Some important tourist centres are Gangtok, akhim, Yumthang, Dubdi, Dzongri etc.

## Tamil Nadu

Area : 1,30,058 sq. km.; Population: 58,58,946; Capital : Chennai; Principal Language Tamil; Governor : Justice M. Fathima Beevi; Chief Minister: M. Karunanidhi.

## History and geography

Tamil Nadu has an ambiguous antiquity. Though early sangam classics throw historical references, only from the Pallavas we pass to recorded history.

South India had remained under the hegemony of the Cholas, the Cheras and the Pandya for centuries. The Pallavas held supremacy from about the second quarter of the fourth century AD. They were, the originators of the famous Dravidian style of temple architecture. The last Pallava ruler was Aparajita in whose reign the later Cholas under Vijayalaya and Aditya asserted themselves by about 10th century. At the end of the 17th century, Tamil Nadu was ruled by several dynasties like the Chalukyas, Cholas and Pandyas. In the two centuries that followed, the imperial Cholas gained paramountcy over South India.

Muslims gradually strengthened their position, which led to the establishment of the Bahamani sultanate by the middle of the 14th century. At the same time the Vijayanagar kingdom quickly consolidated itself and extended its way over the whole of South India and at the close of the century, Vijayanagar became the supreme power in South. However, it crumbled at the battle of Talikota in 1564 to the confederate forces of the Deccan sultans.

East India company gradually annexed territories by encouraging envy among the native rulers. Tamil Nadu was one of the first of British settlements in India. The State is the successor to the old Madras Presidency which in 1901 covered the bulk of the southern Peninsula. The composite Madras State was later reorganised and the present Tamil Nadu was formed. Tamil Nadu is bounded on north by Andhra Pradesh and Karnataka, on west by Kerala, on east by the Bay of Bengal and on south by the Indian Ocean.

## Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Chennai	174	38,41,396	Chennai
2. Kancheepuram	4,433	18,98,396	Kancheepuram
3. Thiruvallur	3,424	27,54,963	Thiruvallur
4. Vellore	6,077	30,26,432	Vellore
5. Tiruvannamalai	7,475	20,42,979	Tiruvannamalai
6. Cuddalore	3,999	1,22,759	Cuddalore
7. Villupuram	6,896	27,55,674	Villupuram
8. Salem	5,220	25,73,667	Salem
9. Namakkal	3,429	13,22,715	Namakkal
10. Dharmapuri	9,622	24,28,596	Dharmapuri
11. Pudukottai	4,663	13,27,148	Pudukottai
12. Erode	8,162	23,20,263	Erode
13. Nilgiris	2,549	7,10,214	Udhagamandalam
14. Coimbatore	7,469	35,08,374	Coimbatore
15. Trichirappalli	5,114	21,96,473	Trichirappalli
16. Karur	1,988	8,54,162	Karur
17. Perambalur	2,509	10,87,413	Perambalur
18. Thanjavur	3,396	20,25,324	Thanjavur
19. Nagapattinam	2,715	12,01,512	Nagapattinam
20. Thiruvarur	2,097	13,04,621	Thiruvarur
21. Madurai	3,741	24,00,339	Madurai
22. Theni	2,889	10,49,323	Theni
23. Dindigul	6,266	17,60,601	Dindigul
24. Ramanathapuram	4,232	11,44,040	Ramanathapuram
25. Sivagangai	4,086	10,78,190	Sivagangai
26. Virudhunagar	4,312	15,65,037	Virudhunagar
27. Tirunelveli	6,823	25,01,832	Tirunelveli
28. Tuticorin	4,621	14,55,920	Tuticorin
29. Kanyakumari	1,672	6,00,349	Nagercoil

## Economy

The economy depends largely on agricultural sector as more than 70 per cent of the population are engaged in agriculture. Major food crops are rice, jawar, ragi, bajra, maize and pulses. Important commercial crops that are grown in Tamil Nadu are sugarcane, cotton, ground nut, sesame, sunflower, castor, chillies, banana, mango, coffee, tea, rubber, cashew, coconut etc. Tamil Nadu has a special position in terms of production and application of bio-fertilizer.

Major industries in Tamil Nadu are cotton textiles, chemical fertilizers, paper and its products, printing and allied industries, diesel engines, automobiles and its ancillaries, bicycle, cement, sugar, iron steel, railway wagons and coaches.

A number of public sector undertakings are located in the State. Important among them are Neyveli Lignite Corporation, Integral Coach Factory, High Pressure Boiler Plant, Hindustan Teleprinters, Hindustan Photo Films, Madras Refineries, Madras Fertilizers, Heavy Vehicles Factory and Pugalur Paper Factory.

Important irrigation schemes implemented since Independence are, the Lower Bhavani, the avathi, the Vaigai the Parambikulam - Aliyar, 'shnagin, the Sattanur, the Opulumbadi - al High Level Canal, the Gomukhi Nadi, ar Pattanamkal and the Pennaiar. The Tamil Nadu Water Resources consolidation Project has been set up with an investment cost of Rs 1,140 crore. This project will provide for the rehabilitation of all major and medium irrigation schemes in the State except the Cauvery system.

## Transport

**Roads :** The length of the road network in Tamil Nadu is nearly 1.70 lakh km.

**Railways :** Main rail junctions in the State include Chennai, Madurai, Tiruchirappalli, Salem, Coimbatore, etc.

**Aviation :** Chennai being the international airport in the southern

region, is the main centre of airline routes. Besides, there are airports at Tiruchirappalli, Madurai, Coimbatore and Salem.

**Ports :** Major ports in the State are Chennai and Tuticorin, Cuddalore and Nagapattinam are lesser known ports. There is an inland container depot to cater to the export traffic at Coimbatore linked to Cochin port in Kerala.

## Festivals

Pongal is the harvest festival celebrated for four days in mid-January commencing from the last day of the Tamil month Margazhi. The sun, the earth and the cattle are worshipped by farmers as thanks giving for a bounteous harvest. A music festival is celebrated every year at Thiruvaiyaru in January in honour of poet saint Thyagaraja. Musicians from all over India assemble here to take part in the festival. Summer Festival is held in the hill stations, Udhagamandalam, Kodaikkanal and Yercaud in May every year.

## Tourist centres

Ooty, Kodaikkanal, Chennai, Kancheepuram, Mudumalai, Ramehwaram, Kanyakumari etc. are some of the places of immense tourist interest.

## Tripura

Area: 10,491.69 sq. km; *Population :* 27,57,205; *Capital :* Agartala; *Principal Language :* Bengali and Kokborak; *Governor :* Siddheshwar Prasad; *Chief Minister :* Manik Sarkar.

## History and geography

Tripura has a long and historic past comprising its unique tribal culture and a fascinating

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. North Tripura	2,820.63	4,67,147	Kaliashahar
2. South Tripura	2,151.77	7,17,100	Udaipur
3. West Tripura	2,996.82	12,93,661	Agartala
4. Dhalai	2,522.47	2,79,097	Ambassa

folk lore. The history of Tripura can be understood from "Rajmala" chronicles of king Tripura and writings of other Mohammedan historians. There are references of Tripura even in the Mahabharata and Puranas. According to "Rajmala", the rulers were known by the surname 'Fa' meaning 'Father'. There is a reference to rulers of Bengal helping Tripura kings in the 14th century. Kings of Tripura had to face frequent Mughal invasions with varying successes. Nineteenth century marked the beginning of the modern era in Tripura when king Maharaja Birendra Kishore Manikya Bahadur modelled his administrative set-up on the British India pattern and brought in various far reaching reforms. His successors ruled over Tripura till 15th October, 1949 when it merged with the Indian Union. It attained a full fledged statehood status in 1972.

Tripura is strategically situated between the river valleys of Myanmar and Bangladesh. Encircled almost on three sides by Bangladesh, it is linked with Assam and Mizoram in the north-east.

Total irrigated area in the State is 59,586 hectares (1994-95). Target for energy generation during 1997-98 was 33.25 MU of which 448 MU was generated. At present Gumti Hydel Project is generating 12 MW. Works relating to Rokhia Phase V and VI have been completed and both 8MW, sets commissioned in September 1997. The 1st, 2nd and 3rd units of Central Sector Project NEEPCO has been commissioned in February 1998, March, 198 and April, 1998 respectively. GAIL laid pipelines for supplying gas for Ramchandranagar Project.

### Transport

**Roads :** Roads in Tripura are categorized as national highway - 334 kms, major district roads - 44 km, other district roads - 1519 km and village road - 3,642 km.

**Railway :** Railway has been extended up to Kumarghat in North Tripura district and linked with Assam covering a distance of 45 km only. Project

for extension of railway line to Agartala has been taken up by NF Railway. Decision has been taken to start survey work for extension of Railway line from Agartala to Sabroom.

**Aviation :** Agartala is the main airport and connected with Calcutta and Guwahati. Besides Agartala, there are airports at Kailashahar, Kamalpur and Khoai though they are not being used at present.

## Uttar Pradesh

**Area :** 294,411 sq. km.; **Population :** 13,91,12,287; **Capital :** Lucknow; **Principal Language :** Hindi and Urdu; **Governor :** Suraj Bhan, **Chief Minister :** Ram Prakash Gupta.

### History and geography

The history of Uttar Pradesh is very ancient and engrossing. It is recognised in the later Vedic Age as Brahmarshi Desha or Madya Desha. Many great sages of the Vedic times like Bharadwaja, Gautam Yagyavalkya, Vasishtha, Vishwamitra and Valmiki appear to have flourished in this state. Several sacred books of the Aryan were also composed here.

In the sixth century BC Uttar Pradesh was associated with two new religions - Jainism and Buddhism. It was at Samath that Buddha preached his first sermon and laid the foundations of his order and it was in Kushinagar in Uttar Pradesh like Ayodhya, Prayag, Varanasi and Mathura became reputed centres of learning.

Uttar Pradesh preserved its intellectual leadership even under the British administration. The British combined Agra and Oudh into one province and called it United Provinces of Agra and Oudh. The name was shortened to the United Provinces in 1935. In January, 1950 the United Provinces was renamed as Uttar Pradesh.

The state is bound by Tibet and Nepal in north, Himachal Pradesh in north-west, Haryana in west, Madhya Pradesh in south and Bihar in east. Uttar Pradesh can be divided into three distinct regions : (i) Northern mountains, (ii) southern

# NATIONAL NETWORK

hills plateau and (iii) Gangetic plain.

## Economy

Agriculture is the main occupation of 78 per cent of the population of the state. The net cultivated area in the state is 172 lakh hectares. The state is the largest producer of food grain, sugarcane and oilseeds.

By the end of March, 1996, there were 1,661 medium and large industrial undertakings with an investment of Rs. 22,00 crore. Besides, there were 2,96,338 small-scale industrial units involving a total investment of Rs. 2,597 crore. About 40.28 lakh tones of sugar, 7.36 lakh tonnes cement, 255.68 lakh kg cotton cloth and 120.10 lakh kg cotton yarn were produced in the state. There were 80 textiles units with an investment of Rs. 881.38 crore.

Under the public sector, the mining of limestone, magnesite, coal, rock-phosphate, dolomite and silica-sand is being carried out. The bulk production of minor minerals and some of the major minerals like limestone, silica-sand, magnesite, pyrophyllite and diaspore is mostly with the private sector.

During 1995-96, an expenditure of Rs. 515.54 crore was made to raise the irrigation potential to a level of 267.99 lakh hectares. The UP State Electricity Board (UPSEB) since its inception on 1 April, 1959 has been carrying out the work of genera-

## Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Agra	4,027	27,51,021	Agra
2. Aligarh	5,019	32,95,982	Aligarh
3. Etah	4,446	22,44,998	Etah
4. Firozabad	2,361	15,33,054	Firozabad
5. Mainpuri	2,760	13,16,746	Mainpuri
6. Mathura	3,911	19,31,186	Mathura
7. Mahamaya Nagar	-	-	Hathras
8. Azamgarh	4,234	31,53,885	Azamgarh
9. Ballia	2,981	22,62,273	Ballia
10. Mau	1,713	14,45,782	Mau
11. Kaushambi	-	-	Kaushambi
12. Fatehpur	4,152	18,99,241	Fatehpur
13. Pratapgarh	3,717	22,10,700	Pratapgarh
14. Allahabad	2,261	49,21,313	Allahabad
15. Chhatrapati Shahuji	-	-	Karwi Maharaj Nagar
16. Budaun	5,168	24,48,338	Budaun
17. Bareilly	4,120	28,34,616	Bareilly
18. Pilibhit	3,499	12,83,103	Pilibhit
19. Shahjahanpur	4,475	19,87,395	Shahjahanpur
20. Faizabad	4,511	29,78,484	Faizabad
21. Ambedkarnagar	-	-	Ambedkarnagar
22. Bahraich	6,877	27,63,750	Bahraich
23. Barabanki	4,402	24,23,136	Barabanki
24. Gonda	7,352	35,73,075	Gonda
25. Sultanpur	4,436	25,38,970	Sultanpur
26. Pauri Garhwal	5,438	6,82,535	Pauri
27. Chamoli	9,126	4,54,871	Gopeshwar
28. Dehradun	3,088	10,25,679	Dehradun
29. Tehri Garhwal	4,421	5,80,153	New Tehri
30. Uttarkashi	8,016	2,39,709	Uttarkashi
31. Gorakhpur	3,325	30,66,022	Gorakhpur
32. Deoria	2,613	4,44,024	Deoria
33. Kushinagar	-	-	Padarauna
34. Maharajganj	2,948	16,76,378	Maharajganj
35. Banda	7,624	18,62,139	Banda
36. Hamirpur	4,098	14,66,491	Hamirpur
37. Jalaun	4,565	12,19,377	Orai
38. Lalitpur	5,039	7,52,043	Lalitpur
39. Mahoba	-	-	Mahoba
40. Jhansi	5,024	14,29,698	Jhansi
41. Kanpur	1,065	24,18,487	Kanpur
42. Kanpur Dehat	5,111	21,38,487	Akbarpur
43. Farrukhabad	4,274	24,40,266	Fatehgarh
44. Etawah	4,326	21,24,655	Etawah
45. Lucknow	2,528	27,62,801	Lucknow
46. Hardoi	5,986	27,47,082	Hardoi
47. Lakhimpur Kheri	7,680	24,19,234	Kheri
48. Rai Bareilly	4,609	23,22,810	Rai Bareilly

**Area, population and headquarters of districts**

S. District No.	Area in 000'sqkm	Population	Headquarters
49. Sitapur	5,743	28,57,009	Sitapur
50. Unnao	4,558	22,00,397	Unnao
51. Nainital	6,794	15,40,174	Nainital
52. Udham Singh Nagar	-	-	Rudrapur
53. Almora	5,385	8,36,617	Almora
54. Pithoragarh	8,856	5,66,408	Pithoragarh
55. Bulandshahar	4,352	28,49,859	Bulandshahar
56. Meerut	3,911	34,47,912	Meerut
57. Ghaziabad	2,590	27,03,933	Ghaziabad
58. Gautam Buddha Nagar	-	-	Noida
59. Moradabad	5,967	41,21,035	Moradabad
60. Biznor	4,561	24,54,521	Biznor
61. Rampur	2,367	15,02,141	Rampur
62. Jyotiba Rao Phule Nagar	-	-	Amroha
63. Saharanpur	3,689	23,09,029	Saharanpur
64. Hardwar	2,360	11,24,488	Hardwar
65. Muzaffarnagar	4,008	28,42,543	Muzaffarnagar
66. Varanasi	4,036	48,60,582	Varanasi
67. Jaunpur	4,038	32,14,636	Jaunpur
68. Chandauli	-	-	Chandauli
69. Ghazipur	3,377	42,16,617	Bhadohi
70. Bhadohi	-	-	Bhadohi
71. Mirzapur	4,522	16,57,139	Mirzapur
72. Sonbhadra	6,788	10,75,041	Robertsganj
73. Basti	3,733	27,38,522	Basti
74. Balrampur	-	-	Balrampur
75. Shravasti	-	-	Shravasti
76. Siddharth Nagar	3,495	17,07,685	Navgarh
77. Champawat	-	-	-
78. Bageshwar	-	-	-
79. Rudra Prayag	-	-	Rudra Prayag
80. Baghpat	-	-	Baghpat
81. Kannauj	-	-	Kannauj
82. Auraiya	-	-	Auraiya
83. Sant Kabir Nagar	-	-	Sant Kabir Nagar

**Transport**

**Roads :** The roads constructed by PWD by the end of 1995-96 were 88,200 km including 17,940 km kacha roads. The length of roads in hill area is 3,335 km and in frontier areas 505 km respectively.

**Railways :** Lucknow is the main junction of the northern network. Other important railway junctions are Agra, Kanpur, Allahabad, Mughalsarai, Moradabad, Varanasi, Tundla, Gorakhpur, Gonda, Faizabad, Bareilly and Sitapur.

**Aviation :** There are airports at Lucknow, Kanpur, Varanasi, Allahabad, Agra, Jhansi, Bareilly, Hindon (Ghaziabad), Gorakhpur, Sarswa (Saharanpur), Pantnagar (Nainital), Jolly Grant (Dehradun) and Fursatganj (Rae-Bareilly).

**Festivals**

The biggest congregation, perhaps of the world, Kumbha Mela is held at Allahabad and Hardwar every twelfth year. Ardh Kumbh Mela is also held at these places every sixth year. In Allahabad, there is a *Magh Mela* every winter in January when people come and settle there for a month to have a dip in the holy Sangam

tion, transmission and distribution of electricity throughout the State. At the time of its inception, the total installed capacity, including thermal and hydro, was 263.5 MW which has now been raised to 6,048.75 MW (derated 5,775.75 MW) as on 31 March, 1996. By the end of 31 March, 199, 85,657 villages were electrified as per CEA definition and 55,500 villages were electrified through LT Mains.

every morning. Among other fairs is the fortnight long jhoola fair of Mathura, Vrindavan and Ayodhya, when dolls are placed in gold and silver jhoolas or cradles. A dip in the Ganga on Kartik pooranmasi is supposed to be the holiest and there are big congregations at Garhmukteswar, Sonbhadra, Rajghat, Kakora, Bithur, Kanpur, Allahabad, Varanasi, Ayodhya and Hardwar. A famous *corrie* fair is held at Bateswar in .

## NATIONAL NETWORK

### Tourist Centres

Uttar Pradesh has varied attractions for all kinds of tourists. Besides ancient places of pilgrimage like Varanasi, Vindhyachal, Ayodhya, Chitrakoot, Prayag, Bageshwar, Jageshwar, Pauri, Naimisharanya, Mathura, Vrindava, Hardwar, Rishikesh, Badrinath, Kedarnath, Gangotri, Yamunotri, Nanak Matta, Hemkund-sahib, Dewa Sharief Peerane-Kaliyar, Dargah of Sheikh Salem Chisti in Fatehpur, Samath, Shravasti, Kushinagar, Sankisa, Kampil, Piprahwa and Kaushambi, places like Agra, Ayodhya, Samath, Varanasi, Luknow, Mathura, Prayag, Jhansi, Gorakhpur, Jaunpur, Kanauj, Mahoba, Devgarh, Bithur and Vindhyachal have rich treasures of Hindu and Islamic architecture and culture.

Uttar Pradesh has a treasure of magnificent scenic spots like Sangam in Allahabad, Hundo (Ghaziabad) and Tanda Waterfall in Mirzapur. The hills of Kumaon are a feast to the eyes. The scenic beauty of the Himalayan valleys is enthralling.

### West Bengal

Area : 88,752 sq km; Population : 6,79,82,732;  
Calcutta; Principal Language : Bengali;  
Governor : Viren J. Shah; Chief Minister : Jyoti Basu.

### History and geography

At the time of Alexander's invasion a powerful kingdom called Gangaridai ruled over Bengal. Ascendancy of the Guptas and the Mauryas had somewhat a little effect on Bengal. Later Sasanka became King of Bengal and is said to have played an important role in north-eastern India in the early half of the seventh century. He was succeeded by Gopala, who founded the Pala dynasty which ruled for centuries and had created a huge empire. The Palas were followed by the Sena dynasty which was ended by Muslim rulers from Delhi. Bengal was ruled by various Muslim rulers and governors till the Mughal period in sixteenth century.

After the Mughals, history of modern

Bengal begins with the advent of European trading companies. Battle of Plassey in 1757 changed the course of history when the English first gained a strong foothold in Bengal and India. In 1905 it was partitioned for political gains of the Britishers resentment which reflected in a mass movement under the auspices of Congress led to its reunion in 1911. This triggered off hectic movement for freedom which culminated with Independence in 1947 and partition. After 1947, the merger of native settlement began which ended with its final reorganisation in 1956 (as per Recommendations of the States Reorganisation Act, 1956) when some Bengali speaking areas of a neighbouring state transferred to West Bengal.

The land frontiers of the State touch Bangladesh in the east and is separated from Nepal in the west. Bhutan lies in the north-east, while Sikkim is on the north. On the west and south are the states of Bihar and Orissa, respectively, Bay of Bengal washing its southern frontiers.

### Economy

Agriculture plays a crucial role in the State's income and nearly three out of four persons in the State are directly or indirectly involved in agriculture. The total food production in the State in 1996-97 was 137.57 lakh tonnes. The rice production in 1996-97 was 126.37 lakh tonnes as against 118.87 lakh tonnes in 1995-96. West Bengal was the largest producer of rice among the states of India. The production of wheat and pulses in 1996-97 was 8.39 lakh tonnes and 1.72 lakh tonnes respectively.

West Bengal is one of the major industrial states in the country with 10,236 registered working factories in 1995. A mega City Project for Calcutta has been initiated by the State Government entailing an investment of around Rs. 1,600 crore. Another Rs. 1,115 crore programme for improving the infrastructural facilities in non-CMD Municipalities is planned. West Bengal Industrial Infrastructure Development Corporation (WBIIIDC) has so far constructed 12 industrial estates (growth centres) in the state. The number of Small Scale

Industries during 1996-97 stood at 19,246 (provisional).

Besides alloy steel plant at Durgapur, there are two more steel plants one at Durgapur and one at Bumpur and 23 mini steel plants. Major industries among others include engineering, electronics, automobiles etc.

Power in West Bengal is currently generated by the West Bengal Power Development Corporation Limited, West Bengal State Electricity Board, Calcutta Electric Supply Corporation and Durgapur Project Limited. There were 41,63,681 consumers of electricity up to November 1997. The power generation installed capacity of 6146 MW (up to November 1997) is expected to increase by 2,643.5 MW, by the turn of the century. Moreover, the power projects in the pipeline would add another 2,856 MW.

Important multi-purpose irrigation schemes implemented since 1947 include barrage and irrigation system of the Damodar Valley, Mayurakshi irrigation and Kangsabati projects. The gross minor irrigation potential that can be created in the State is 44.34 lakh hectares of which 31.34 lakh hectares are on ground water and the rest 13 lakh hectares are from surface water sources. In 1996-97, additional irrigation potential of 16.34 thousand hectares was created through major and medium irrigation schemes. Work on three major irrigation projects, Kangsabati Reservoir Project, Damodar Valley Barrage and Irrigation Project and Teesta Barrage Project (1st sub-stage) and 18 medium irrigation schemes is continuing.

### Transport

**Roads :** The length of roads as on 31 March 1995 was 3,375 km including 1,710 km national highways. The length of

roads under PWD as on March 1997 are : State Highways 3,378 km, district roads 9,618 km and rural/villages roads 5,527 km respectively.

**Railways :** The total length of railway route (inclusive of broad gauge, metre gauge and narrow gauge) in the state is 3,784.96 km in 1996-97. Howrah, Asansol, Sealdah, Bandel, Bardhaman, Kharagpur and New Jalpaiguri are the main junctions among others.

**Ports :** Calcutta is the most important port followed by Haldia.

**Aviation :** At Dum Dum near Calcutta an international airport is located and other airfields in the State are Balurghat, Coochbehar, Malda, Bagdogra, Panagarh, Behala, Barrackpore and Kalaikunda.

### Festivals

Durga Puja is the most important festival along with Kali puja or Diwali besides Vasant Panchami, Lakshmi Puja, Holi, Sivaratri, Janmashami, Id-ul-Fitr, etc.

### Area, population and headquarters of districts

S. District No.	Area In 000'sqkm	Population	Headquarters
1. Bankura	6,882	28,05,065	Bankura
2. Bardhaman	7,024	60,50,605	Bardhaman
3. Birbhum	4,545	25,55,664	Suri
4. Calcutta*	18,733	43,99,819	Calcutta
5. Darjeeling	3,149	12,99,919	Darjeeling
6. Howrah	1,467	37,29,644	Howrah
7. Hooghly	3,149	43,55,230	Chinsurah
8. Jalpaiguri	6,227	28,00,543	Jalpaiguri
9. Coochbehar	3,387	21,71,145	Coochbehar
10. Malda	3,733	26,37,032	English Bazar
11. Medinipur	14,081	83,31,912	Medinipur
12. Murshidabad	5,324	47,40,149	Berhampore
13. Nadia	3,927	38,52,097	Krishnagar
14. North 24 Parganas	14,081	72,81,881	Alipore
15. South 24 Parganas	-	57,15,030	Barasat
16. Purulia	6,259	22,24,577	Purulia
17. Uttar Dinajpur	3,180	19,26,729	Raigunj
18. Dakshin Dinajpur	2,183	12,00,924	Balurghat

\* Includes three municipalities (Garden Reach with 12.05 sq km, Suburban with 30.38 sq km and Jadavpur with 40 sq km)



## NATIONAL NETWORK

### Tourist Centres

Important tourist centres are, among others Calcutta, Digha (Midnapore), Bakkhali Sea Resort, Sagar Island and Sundarbans (South 24 Parganas), Dareeling Shantiniketan etc.

## Andaman and Nicobar Islands

Area : 8,249 sq km; Population : 2,80,661; Capital : Port Blair; Principal Languages : Hindi, Nicobarese, Malayalam, Bengali, Tamil, Telugu; Lt. Governor : Ishwari Prasad Gupta; Chief Secretary : Ramesh Narayan Swami.

### History and geography

121 km from Little Andaman island. There are 36 inhabited islands in the Andamans and 12 in the Nicobar District

Original inhabitants of the island lived in the forests hunting and fishing, Negrito tribes, viz., the Great Andamanese, Onge, Jarawa and Sentinalese group of island and two Mongoloid tribes, viz., Nicobarese and in the Nicobar group of islands. Among these, the Jarawas and the have not yet learnt the concept of governing their bodies.

Modern history of the Andaman and Nicobar Islands begins with the of a settlement by East India Company in 1789. However, in 1796 this was abandoned. Following the first war of Indian Independence in 1857, Indian government founded the penal settlement in these island in 1858, known as Kalapani, for the deportation of mutineers, political prisoners and criminals from the mainland Indian which continued till the second World the Second World War, the Japanese force occupied the Andaman Island in 1942. Further following the surrender of the Japanese forces in the World War, The British India Government reoccupied these in 1945 and their administration of these islands till the Independence of the country in 1947.

The Andaman and Nicobar Island, an Union Territory, are situated between 60° and 140° North Latitude

and 92° and 94° East Longitude. The group of 572 island/islets lie in the Bay of Bengal 153 km from Cape Negrais in Burma (Myanmar), 1,225 km from Calcutta and 1,190 km from Chennai. Two principal group of islets are Ritchie's Archipelago and Labyrinth Islands.

### Economy

49,717 hectares of land is used for agriculture purposes. Paddy the main crop, is mostly cultivated in Andaman group of islands, whereas coconut and the main cash crops of Nicobar group of islands. Field crops, namely, oilseeds and vegetables are grown, followed by paddy during Rabi season. Kinds of fruits such as mango, sapota, orange, banana, papaya, pineapple crops are grown on hilly land owned by farmers.

Cover 7,171 sq km of the total area of the island. All types of forests are found, such as ant evergreen, hill-top evergreen, moist, deciduous, littoral, and swamp forest. A large variety of timber is found in the Andaman group. The most valuable timbers are padauk and gurjan. These species are not Nicobar. At present there is 7,61 sq km of land under forest cover in Andaman and Nicobar Islands.

1,266 registered small scale handicrafts units. Two units are engaged in line of fish processing activity. Recently, engineering, units are engaged in producing polythene bags, PVC conduit pipes, paints and varnishes, and mini flour, drinks and beverages, steel furniture, aluminium doors and windows etc. Small scale handicraft units are also in shell crafts, bakery products, rice milling, furniture making, oil seeds.

### Transport

Islands are accessible both by air and

### Area, population and headquarters of district

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Andaman	6,408	2,41,453	Port Blair
2. Nicobar	1,841	39,208	Car Nicobar

Indian Airlines is operating four flights between Calcutta and Port Blair and three flights a week between Chennai and Port Blair. The passenger ships ply between Port Blair and Calcutta/Chennai/Vishakhapatnam. The Directorate of Shipping Services maintain regular inter-islands, fore-shore and harbour ferry services to cater to the need of inter-island commuters.

## Tourism

Popularly known as the Emerald Isles, Andaman and Nicobar Island are a paradise for eco-friendly tourists. Covered with dense forest and endless variety of exotic flora and fauna these islands have lovely beaches and charming underwater corals and marine life. Important tourist centres are : Cellular Jail, National Memorial, Anthropological Museum, Marine Museum, Water Sports Complex etc.

## Government

**Lt. Governor :** Iswari Prasad Gupta, **Chief Secretary :** Ramesh Narayanaswamy, **Jurisdiction of High Court :** Falls under the jurisdiction of Calcutta High Court.

## Chandigarh

**Area :** 114 sq km; **Population :** 7.5 lakh; **Capital :** Chandigarh; **Languages :** Hindi, Punjabi, English; **Administrator :** Lt. Gen. (Retd.) J.F.R. Jacob.

## History and geography

Chandigarh nestles in a picturesque setting in the foothills of Shivalik hills and enjoys the popular epithet the City Beautiful. Representative of modern architecture and town planning, the city is a creation of the French architect, Le Corbusier. Chandigarh and the area surrounding it were constituted as a Union Territory on 1 November 1966. It serves as the joint capital of both Punjab and Haryana states. It is bounded on north and west by Punjab and on the east and south by Haryana.

## Agriculture

Cultivable land is about 2,325 hectares in the Union Territory of Chandigarh and irrigated area about 2,190 hectares. Wheat, maize, vegetables and fodder are the major crops.

## Industry

There are 15 large and medium scale units in Chandigarh of which two are public undertakings. More than 2,950 units registered under small-scale sector, provide employment to nearly 29,000 persons. Large and medium-scale units produce hosiery and knitting machines needles, woodtops, electric meters, cycle free wheels and rims, antibiotics, soft drinks, cardboard, etc. Small-scale units are engaged in the production of steel fabrication, door fittings, spun pipes, sanitary fittings etc.

## Power

Chandigarh gets power from neighbouring states and Central generation projects to meet its power requirement. It has 3.5 per cent share of total power generation of Bhakra complex. Further the firm allocation is 80 mw, out of thermal, nuclear and gas based Central generation projects.

## Transport

The length of national highways is 15,275 km. Chandigarh is well connected by rail, road and air.

## Tourist Centres

Important places of tourist interest are Rock Garden, Zakir rose Garden, Fragrance Garden, Shanti Kunj, Sukhna Lake etc.

## Government

**Administrator :** Lt. Gen. (Retd.) B.K.N. Chibber, **Advisor :** Jagdish Sagar, **Jurisdiction of High Court :** Falls under jurisdiction of Punjab and Haryana High Court

## Dadra and Nagar Haveli

**Area :** 491 sq km; **Population :** 2,50,000; **Capital :** Silvassa; **Principal Language :** Gujarati

## NATIONAL NETWORK

Hindi; Administrator : Ramesh Negi.

### History

After prolonged skirmishes between the Portuguese and Marathas, on 17th December 1779, the Maratha Government assigned the aggregated revenue of Rs. 12,000 in a few villages of this territory to the Portuguese as compensation to ensure their friendship. The Portuguese ruled this territory until its liberation by the people on 2 August 1954. Subsequently the administration was carried on for some time by an administrator. However, the territory was merged with the Indian Union on 11 August 1961 and since then is being administered by the Government of India as a Union Territory through the Administrator.

The Union Territory of Dadra and Nagar Haveli has an area of 491 sq km surrounded by Gujarat and Maharashtra. It consists of two pockets, namely, Dadra and Nagar Haveli. There are 72 villages of which one village Kothar is almost uninhabited.

### Economy

Dadra and Nagar Haveli, a predominantly rural area having about 79 per cent population of tribals has about 23,958 hectare under cultivation. Major crop is paddy (Kharif) while Nagli and other hill-millet are crops of the area. Among fruits, mango, chiku and bananas, etc., are also produced. Forests cover 40 per cent of the total geographical area. The tribal population that leans heavily on forests have been given exclusive rights for collection of minor forest produce free of cost. By March 1997 there were 710 industries which include cottage, village and small scale industries and 252 medium scale industries in textiles, engineering, plastics, electronics, chemicals, pharmaceuticals, etc., which employ more than 15,780 persons and produce goods worth over Rs. 1,700 crore. These industries are given several incentives like exemption of sales tax for 15 years, corporate income tax exemption for five years etc.

### Transport

The Union territory does not have its own

road transport system. It avails of Gujarat and Maharashtra states transport system. Total road length is about 533.94 km of which 450.44 km is surfaced. Sixty-eight villages are connected with all weather roads. Rail route from Mumbai to Ahmedabad links Vapi also. Mumbai is the nearest airport.

### Tourism

Tourism sector has been assigned a high priority keeping in view the deep forest area and favourable climate. The prominent places of tourist interest are *Tadkeshwar Shiva Mandir*, Bindrabi Deer park Khanvel, Vanganga lake and island garden, *Dadra*, *Vanvihar Udhyan*, Mini Zoo, B *Udhyan*, Tribal cultural museum, and *Hirvangan* garden at Silvassa. The development of Water Sports at Dudhani and *Khandiv Van* at Luhari are also under completion. Cottages at Khanvel and Chauda gardens and the tentage accommodation at Dudhani are available for the tourists.

### Government

Administrator : S.P. Aggarwal; Jurisdiction of High Court : Falls under the jurisdiction of the Mumbai High Court

## Daman and Diu

Area : 112 sq km; Population : 1,01,581  
Capital : Daman; Principal Language : Gujarati  
Administrator : O.P. Kelkar.

### History and geography

Daman and Diu along with Goa was colonised by the Portuguese after Independence. In 1961, it was made an integral part of India. After conferring statehood on Goa on 30 May 1987 Daman and Diu was made a separate Union Territory.

Daman lies about 193 km away from Mumbai. It is bound on north by the Kolak river; on east by Gujarat, on south by Kalai river and on west by the gulf of Cambay Diu is an island. It is connected by two bridges.

## Agriculture and irrigation

Total area under irrigation is 517.22 hectare (244.22 hectare in Daman and 273 in Diu). Important field and garden crops are paddy, ragi, bajra, jowar, groundnut, pulses and beans, wheat, banana, sapota, mango, coconut and sugarcane. There are no major forests in the territory.

## Industry and power

There are 550 small scale industries in Daman and Diu. An industrial areas is being developed by Omnibus Industrial Development Corporation at Daman. The other industrial area are Dabhel, Bhimpore and Kadaiya. All villages have been electrified.

## Transport

**Roads :** The total length of road in Daman and Diu are 183 km and 60 km (surface) respectively.

**Railways :** There is no railway link with Daman and Diu. The nearest railway station from Daman is Vapi on western railway on Mumbai-Delhi route. The nearest railway station from Diu is Dalvada on metre-gauge.

**Aviation :** There are airports both in Daman and Diu. Diu has been connected by air and there is regular air service from Mumbai to Diu.

## Government

I / C Administrator and Secretary Finance : Ramesh Negi; Collector : Raj Kamal Saxena

Presnetly there is a common High Court for Maharashtra and Goa and Union Territories of Daman and Diu and Dadra and Nagar Haveli, at Mumbai.

## Delhi

Area : 1,483 sq km; Population : 94,20,644;

**Capital :** Delhi; **Principal Languages** Hindi, Punjabi and Urdu; **Lt. Governor :** Vijay Kapoor; **Chief Minister :** Smt. Sheila Dixit.

## History and geography

The city of Delhi finds prominent reference right from the times of the epic Mahabharata Delhi or Indraprastha, as it was called in the ancient times went on passing from one kingdom to another, beginning with the Mauryas, Guptas, Palas of Central India, and then to the Afghan and the Muslim invaders for about four centuries, and finally to the Mughals in the 16th century. In the later half of the 18th century and early 19th century, the British rule engulfed Delhi and in 1911, it was the centre of all activities. After 1947, it became the capital of India and was made a Union Territory in 1956.

Lying in the northern part of the country, Delhi is surrounded by Haryana on all sides except the east where it borders with Uttar Pradesh.

## Economy

Delhi is not only the largest commercial centre in northern India but also the largest centre of small industries. Since 1974, a large number of industrial concerns have been established. They manufacture a wide variety of items like television, tape, recorders, light engineering machines and automobile parts, razor blades, sports goods, bicycles and FVC goods including footwear, textiles, fertilizers, medicines, hosiery, leather goods, soft drinks etc.

There are also units for metal forging casting, galvanising and electroplating printing and warehousing. In 1996 1,26,000 industrial units with an investment of Rs. 2,524 crore. were manufacturing goods worth Rs. 6,310 crore and providing employment to more than 1.136 lakh persons.

Irigation facilities are being provided through canals, tube-wells and effluent from sewage treatment plants at Keshavpur, Okhla and Coronation Pillar. More than 75 per cent cropped area is covered under assured

### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Daman	72	62,101	Daman
2. Diu	40	39,485	Diu

irrigation. Special attention is paid to provide irrigation facilities to the scheduled castes and marginal farmers through state tubewells. The power demand of Delhi which was 1,065 MW in 1977-78 reached over 2,400 MW in June 1998. Power generation aspect is being taken care of by Delhi Vidyut Board at the Indraprastha Estate, Rajghat and by Gas turbines at Indraprastha Estate, where three waste heat recovery units are also being installed for enhanced generation.

### Transport

Delhi is well connected by roads, rail and air with all parts of India. It has three airports, Indira Gandhi International Airport for the international flights, Patam Airport for national services and Safdarjung Airport for training purposes. It has three important railway stations, Delhi Junction, New Delhi Railway station and Nizamuddin Railway station. Besides Inter-State Bus Terminals at Kashmere Gate and Sarai Kale Khan, a third at Anand Vihar has been constructed. A total number of 30.79 lakh motor vehicles were registered as on 30 June, 1998. Delhi has greater number of vehicles than the total vehicles of Mumbai, Calcutta and Chennai put together.

### Tourist Centres

Important tourist centres are Lal Quila (Red Fort), Jama Masjid, Qutab Minar, India Gate, Birla Mandir, Humayun's Tomb, Lotus Temple etc. Delhi State Tourism and Transportation Development Corporation conducts city sight-seeing and excursion tours. The Corporation has also introduced adventure tourism activities such as para-sailing, rock-climbing and boating in Delhi. It is also running five Coffee Homes.

## Lakshadweep

Area : 32 sq km; Population : 51,681; Capital : Kavaratti; Principal Language : Malayalam, Administrator : Chaman Lal.

### History and geography

Not much is known of the early history of

these islands. The islands supposed to have been inhabited first are Amini, Kalpeni, Andrott, Kavaratti and Agatti. The archaeological evidence recently unearthed indicated that there were Buddhist settlements around sixth or seventh centuries and the earliest Muslim converts or settlers predate the year 139 AH of the Hijra year (eighth century) of which data gravestones have recently been discovered in Agatti. This would tend to bear out the local tradition that Islam was brought to the islands by the Arab Saint, Ubaidulla. In 1956, the islands were constituted into a single territory and since then, have been directly administered by the Union Government through an Administrator. The Laccadives, Minicoy and Amindivi group of islands were renamed as Lakshadweep in 1973.

Lakshadweep, a group of coral island consists of 12 atolls, three reefs and submerged sandbanks. Of the 36 islands, only 11 are inhabited. These lie scattered in the Arabian Sea about 280 km to 480 km off Kerala coast between 8° and 12°3' north latitude and 71° and 74° east longitude.

### Economy

Coconut is the only major crop with a production of 27.7 million nuts per year. Area under cultivation is about 27.50 sq km.

Fishing is another major activity. The sea around the island is highly productive. The island stands first in the country in per capita availability of fish.

Coconut fibre extraction and conversion of its fibre products are the main industry in the islands. Under government sector there are several coir fibre factories, seven coir production-cum demonstration centres and four fibre curling units functioning under coir sector.

### Transport

MV Tipu Sultan, MV Bharath Seema and MV Dweep Setu carry passengers to and from the islands to Cochin and Bepore ports. MV Ubaidulla, MV Thinnakara, MV Laccadives and MV Cheriya carry cargo to island from main land. MV Suheli 60 MT oil barge is mainly utilised

for providing bunker (fuel) to inter island ferry vessels.

## Pondicherry

**Area :** 492 sq km; **Population :** 8,07,785;  
**Capital :** Pondicherry; **Principal Language :** Tamil,  
Telugu, Malayalam, English and French; **Governor :** Dr. Rajan Rai; **Chief Minister :** R.V. Janakiraman.

### History and geography

The territory of Pondicherry comprises the former French establishment of Pondicherry, Karaikal, Mahe and Yanam which lie scattered in South India. Pondicherry, the capital of the territory was once the original headquarters of the French in India. It is bounded on the east by the Bay of Bengal and on the other three sides by the South Arcot district of Tamil Nadu. About 150 km south of Pondicherry on the east coast lies Karaikal.

### Economy

Nearly 45 per cent of the population in the Union Territory is engaged in agriculture and allied pursuits. Ninety per cent of the cultivated area is irrigated. Besides rice other minor food crops, viz., ragi, bajra and pulses are grown in the Union Territory. The principal cash crops are sugarcane, groundnut and cotton.

The industrial sector in Pondicherry employed about 8,000 persons in the early fifties. With an investment of over Rs. 1,048 crore, industries are providing a livelihood to 68,086 people as on 30 June 1998. The industrial units are manufacturing items such as textiles, sugar, yarn, spirit and beer, potassium chlorate, rice-bran oil, auto

parts, soap, talcum powder, amino acids, disposable syringes, roofing sheets etc.

Irrigation in Pondicherry is mainly through tanks and tubewells. There are 84 tanks with an anicut of 6,456 ha of which two are comparatively bigger (Qustery and Bahour). The tubewell irrigation system is almost in the private sector. There is a major proposal to rehabilitate all the tanks in the Pondicherry region at a cost of Rs. 34.73 crore with the aid of the European Economic Commission in order to improve ground water recharge and stabilise the existing anicut.

There is no power generating station in the Union Territory of Pondicherry. The power requirements are met by availing share from the Central Generating Station and by purchasing power from neighbouring State Electricity Boards. However, to meet the growing demand of power, it has been contemplated to establish a combined cycle Gas Power Plant of 32.5 MW at Karaikal.

### Transport

**Roads :** The Total length of roads as maintained by the Public Works Department is 576.637 km, of which national highways is 24.65, state highways 68.765 km, district and other roads 225.36 kms and rural roads 257.666 km.

**Railways :** Pondicherry is connected to Chennai by metre-gauge and the nearest broad-gauge links is Villupuram junction at a distance of 40 km.

**Aviation :** The nearest airport Chennai is 160 km from Pondicherry.

### Tourism

Having remained the capital of the erstwhile French India, the Pondicherry has a rich French legacy. With neatly laid roads, the wide and vibrant beach promenade architecturally built churches and public buildings of a by gone era, Pondicherry is a window to French colonial history, French culture and heritage in India. ■■

#### Area, population and headquarters of districts

S. District No.	Area in 000'sqkm	Population	Headquarters
1. Pondicherry	293	6,08,338	Pondicherry
2. Karaikal	160	1,45,703	Karaikal
3. Mahe	9	33,447	Mahe
4. Yanam	30	20,297	Yanam

# DEFENCE AND EDUCATION

## Defence Technology and Programmes

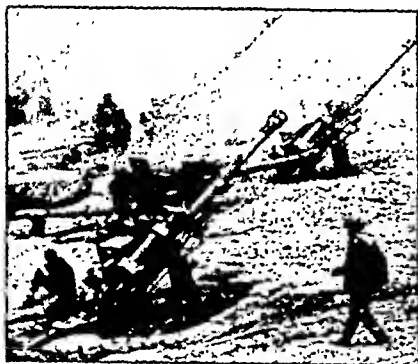
The main objective or aim of India's defence policy is promoting and sustaining durable peace in the sub-continent and equipping the defence forces adequately to safeguard against foreign aggression. In the field of defence research, India has achieved great success and owing to defence scientists, India, today is in the list of some developed nations of the world who have capabilities to produce modern defence arsenals.

Providing a solid base to the national security system, Defence Research and Development (DRDO) was formed in 1958 by amalgamating defence science organisation and some of the technical development establishments. A separate department of Defence Research and Development was formed in 1980 which now administers DRDO and its 50 laboratories and establishments. The Department of Defence Research and Development formulates and executes programmes of scientific research, design and development in the fields of relevance to national security leading to the induction of new weapons, platforms and other equipments required by the Armed Forces. It also

functions as the nodal agency for the execution of major development programmes of relevance to defence through integration of research, development, testing and production facilities with the national scientific institutions, public sector undertakings and other agencies. Its functions are under the control of scientific advisor to Defence Minister who is also Secretary, Defence Research and Development.

Main Research and Development activities of the DRDO cover important demarcated disciplines like aeronautics, rockets and missiles, electronics and instrumentation, combat vehicles, engineering systems, naval systems, armament technology including explosive research, terrain research, advanced computing, artificial intelligence, robotics, systems analysis and life sciences including high altitude agriculture, physiology, food technology and nuclear medicine.

The important and notable development successes of the department include flight simulator for aircraft, 68 mm reusable rocket pod for aircraft, brake parachutes for fighter aircrafts, light field gun, 5.56 mm rifle, charge line mine clearing system for safe passage of vehicles in the battlefield, illuminating ammunition for enhancing night fighting capabilities, cluster weapons system for fighter aircraft and new generation bombs for high speed aircraft and low level bombing. Success stories include different radar like low-level tracking radar Indra I and Indra II for Army and Air Force, Light weight field artillery radar and battlefield surveillance radar have also been developed. Bridge layer Tank-Kartik, military building system, advanced ship solar systems, naval decoys, naval simulators, torpedo launchers, advanced materials and composites for military applications are also some of the other achievements of the department. The main battle tank (MBT) Arjun having superior fire power, high mobility and



xcellent protection has been successfully developed. Army has accepted the tank for induction in the services and the tank is now under troop trials in actual field conditions. Simultaneously planning and production has been initiated by Department of Defence Production and supplies for production of MBT Arjun. A Light Combat Aircraft (LCA) is under hardware fabrication and engineering stage and integration of some of the sub-assemblies has already commenced. An advanced technology gas turbine engine GTX-35VS named Kaveri for use in LCA is under development under a separate programme. Integrated Guided Missile Development Programme (IGMDP) is in progress. The programme comprises four missile systems namely Prithvi, surface-to-surface tactical battlefield missile, Akash, medium range surface-to-air missile; Trishul, short range surface-to-air missile; Nag, third generation anti-tank missile and one intermediate range ballistic missile, Agni. A number of flight tests of these missiles have been successfully conducted. Other projects are at various stages of development like Pilot less Target aircraft (PTA)- Lakshya, Composite Sonar and Tactical Weapon Control System - 'Panchendriya' for navy, LMG and carbine in 5.56 mm calibre and multi-barrel rocket launching system - 'Pinaka'. A Marine Acoustic Research Ship - 'Sagardhwani', designed and built indigenously is one of the most modern research ships equipped with sophisticated laboratories to carry out marine research. A Peace Plus parallel processing computer, configured with advanced commercially available micro-processors and competing nodes, has been designed and developed.

A defence technology park is being established in Bangalore to facilitate transfer technologies by DRDO to industries.

**Integrated Guided Missile Development Programme :** An Integrated Guided Missile Development Programme (IGMDP), launched in 1983 comprises of following missiles developed by DRDO in India.

- i) Surface - to - surface missile - Prithvi
- ii) Surface - to - air medium range missile - Akash



- (iii) Anti-tank missile -Nag
- (iv) Surface-to-air short range missile-Trishul
- (v) Intermediate range ballistic missile (IRBM) - Agni

### Prithvi

**Type :** Short range, surface - to - surface battlefield tactical missile.

**Range :** 150 km with 1000 kg warhead and 250 km with 500 kg warhead (minimum 40 km)

**Pollard :** 500-1000 kg

**Warhead :** Both conventional and nuclear prefragmented and bomblets

**Propulsion :** Single stage, twin gimbaled engine using liquid propellant

**Guidance :** Strap down inertial navigation system, controlled and guided by on-board computer

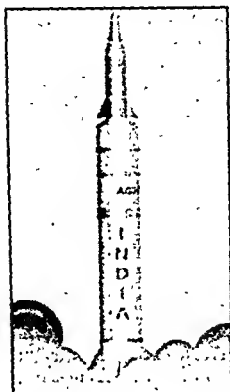
**Tested :** First time on 25th February, 1988 This missile was transform design of S L V -3 (Prithvi-I)

**Prithvi-II :** 16th test was taken place at Chandipur (Orissa) on 23th February, 1997 This test was done by Indian Army

**Prithvi-III or Saganka** is in process of development for Indian Navy

**Description :** The use of Prithvi is visualised as phases of preparatory and subsequent phases of the battle to destroy enemy concentration of tanks and troops, logistic installations, airfields and communication facilities. It is difficult to spot the Prithvi or trace its trajectory and target because of its supersonic speed and limited flight time. The missile is extremely accurate.





(its circular error probability - CEP- is lower than most missile of its class) - with a circular accuracy of 10m. The short-range version is for the Indian Army and long - range for IAF.

## AGNI

**Type :** Surface-to-surface, intermediate range ballistic missile (IRBM)

**Range :** 1000 km -

2500 km

**Payload :** 500 kg - 1000 kg multipurpose.

**Propulsion :** Two stage, first stage uses solid propellant while second stage uses twin liquid propellant engines in the gimbaled configuration

**Description :** Agni is a re-entry technology demonstrator. It is capable of carrying a multipurpose payload. One of its unique features is the heat shield of the re-entry vehicle

**Test :** First successful test of Agni took off on 22nd May, 1989. After this test, India became sixth nation-alongwith USA, Russia, France, China and Israel who have tested IRBM

On April 11, 1999 India tested its Agni-II missile a Balasore (Orissa) successfully.

Range of Agni-II is more than 2500 km. This distance will be covered by Agni-II in just 11 minutes.

## AKASH

**Type :** Medium range, surface-to-air missile

**Range :** 25 km

**Warhead :** Pre-fragmented warhead activated by proximity fuse.

**Guidance :** Command guidance from ground radar system and on-board precision homing system

**Tested :** First time on 14th August, 1990 at Chandipur (Orissa)

**Description :** It is a multi-target missile - can target four to five enemy aircraft and missile at a time. Integrated with the Indigenously produced phased array radar called Rajendra, it is capable of tracking many targets simultaneously. Akash is basically an air defence missile like the US Patriot missile used in the Gulf war to destroy a Scud ballistic missile in its flight trajectory.

## Nag

**Type :** Third generation, 'fire and forget', anti-tank guided missile.

**Range :** 4 km

**Warhead :** Tandem shaped charges

**Propulsion :** Solid propellant motor

**Guidance :** Initial guidance from launcher's target acquisition system and terminal guidance by on-board millimetric wave (MMV) radar seeker as well as an imaging infrared (IIR) system.

**Tested :** first time on 24 November, 1990.

**Description :** The missile is being developed to counter contemporary advances in tank armour, especially the very hard or the reactive type of armour. The missile is mounted on a tracked vehicle equipped with a Line of Sight (LOS) radar. The radar detects the target, passes the information (image coordinates) to the missile. The missile then aligns its sight with that of the LOS radar and blasts off. The missile chases the target wherever it goes. The smokeless propellant developed for the missile prevents easy detection of the launcher which can 'sneak' immediately after shooting. The missile has the unique ability of hitting a tank from the top. The missile can be fired at night and during bad weather conditions as it uses imaging infrared guidance.

## Trishul

**Type :** Short range, surface-to-air missile

**Range :** 500 m to 9 km

**Warhead :** A pre-fragmented warhead with a strong radius of 20m.

**Propulsion :** Single, solid composite propellant

**Guidance :** Command guidance from a ground radar system and on-board computerised control.  
**Tested :** First time on 5th June, 1989.

**Description :** It is being developed for all the three services. The IAF will use it against low flying aircraft while the Navy will use a modified version against sea-skimming missiles like the American Harpoon. In the Army version, three missiles will be mounted on a tracked vehicle equipped with two radars - one for surveillance and the other for guidance. Once an enemy aircraft is identified and located by the surveillance radar, the second radar will take over and start tracking the tracking the target. The moment the enemy aircraft is within range, the missile will be launched, maneuvered into the line of the tracking beam and guided all the way to the target. The Air Force version will be simple except that the version designed for the Navy will contain an accurate altimeter in its sensor unit which will enable the missile to skim above the waves and intercept enemy missiles.

**ARATH :** Sarath is the Infantry Combat Vehicle (ICV) which has been developed by the Indian scientists to carry and launch Trishul, Akash and Nag missiles.

### Future Missiles Projects of India

**Ajaya :** Inter-Continental missile with range of 5000 km is in process of development.

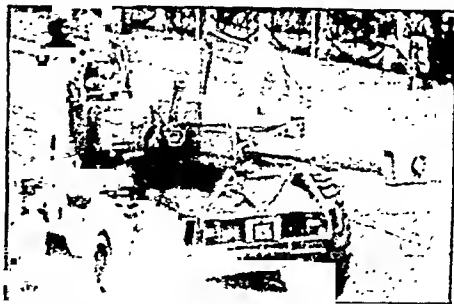
**Agarika :** Cruise missile, will be launched from sea. Its range will be some 100 km.

**Ashtra :** Air-missile; range 60-to-100 km. will be launched from any fighter plane.

**Ahanush :** Will be one of Inter-Continental missile which is designed and formulated by Indian Scientist under the guidance of Dr. Abdul Kalam.

### Other Defence Achievements

**MBT-ARJUN:** India's Main Battle Tank (MBT). Arjun, indigenously designed and developed by DRDO and combat Vehicle Research Development Establishment (CVRDE) avadi, was



dedicated to the nation in January 1996. The idea of developing India's MBT was conceived in 1974. Arjun was formally inducted in 1993 when DRDO offered six pre-production series tanks to Army for user trials.

The Arjun weighs 58 tonnes and hence falls in the main battle tank category (above 50 tonnes). Medium battle tanks are in the weight range of 35 to 40 tonnes. The Russian T-72 M-1 (42 tonnes) and Vijayanta (38 tonnes) come under this category. The 58.5 tonnes Arjun with state-of-the-art technology, superior fire power, mobility and high speed (72 kmph on roads and 40 kmph on rocky terrain), and weapon system has been designed to meet Indian Army's most stringent specifications. It is rated among top MBTs in the world. Its 1400 HP turbo charged diesel engine (imported at present makes it a highly manoeuvrable fighting machine helping it to climb gradients and negotiate sand dunes and deep wide trenches with equal agility. The 120 mm gun with the newly developed super velocity fin stabilised armour-Piercing discarding sabot (FSAPDS) ammunition can defeat contemporary armour used in tanks. The thermal imager provides night vision facility to engage targets in dark. A laser range finder with a 10 km reach can zoom in on faraway targets accurately. The indigenously developed 'Kanchan' armour can protect it from anti-tank ammunition. The satellite base Global Positioning System (GPS) can facilitate the Arjun to find its geographical grid in barren areas and in the dark.

**Lakshya :** 'Lakshya' the pilotless Target Aircraft (PTA), is a sophisticated unmanned aircraft

It has been designed and developed to simulate realistic air targets and to mimic the radars and infra-red signals. It will be used to impart training for surface-to-air, air-to-air missiles and gun firing. This aircraft can be launched either from ground or a ship using a rocket and is powered during flight by a turbo jet engine. It can be revised as many as 10 times and can be controlled upto 100 km through a remote control system.

Lakshya, with a sub-sonic speed of 0.7 Mach in clean configuration and 0.54 Mach in 'one slow one tow' configuration could climb upto 9 km. in clean configuration and 6 km with two bodies at a rate of 35 m/s at sea level. It has a fuel capacity of 190 kg and can tolerate a weight upto 630 kg. It can float above sea for 3 to 4 hour on a parachute until it is retrieved by a helicopter and minimum altitude possible is 300 m.

It has been developed by the DRDO's Aeronautical Development Establishment (ADE) Bangalore. It is solely meant for all the three services and will be used for training of its personnel in using the aircraft.

**Nishant** : India's indigenous Remotely Piloted Vehicle (RPV) 'Nishant', earlier called Falcon, will be soon inducted into the Army. It is intended for battlefield surveillance and reconnaissance roles, incorporates advanced designed feature comparable or superior to those developed elsewhere in the world. It can carry a 45 kg payload, travel at a speed of 150 kmph and fly more than five hours. It can be controlled from the ground for distances upto 160 km and can also be programmed for an autonomous flight. Its detection on radar is difficult as it is made entirely of fibre reinforced glass.

**Pinaka** : To build up ground support for Indian army, DRDO has developed a ground based multibarrel rocket launcher weapon system, 'Pinaka'. Pinaka is a mobile weapon system characterised by capability to deliver saturation fire over targets not engagable by artillery guns. It has a range of 39 km and has a capability of fire upto 12 rockets within seconds. It can launch a variety of warheads. The system has a quick

reaction time, high accuracy and excellent mobile characteristics. It consists of a launcher rocket, replenishment-cum loader vehicle and a command post vehicle. Pinaka is said to be contemporary with other systems of its class that have been developed or are being developed anywhere in the world.

**Light Combat Aircraft** : The indigenously developed Light Combat Aircraft (LCA) was unveiled at the HAL, Bangalore in November 1995, 13 years after it was conceived in 1982. The LCA, being developed as a multi-role combat aircraft, is billed to be the smallest and lightest supersonic fighter of its class in the world. The first prototype - Technology Demonstrator One (TD-1) mainly includes systems integration, ground resonance and structure coupling tests. The LCA will supplement the Russian MiGs and French Mirage 2000s. It can handle beyond the visual range missile. The LCA project, which has now been advanced at 2002 instead of 2005, is a part of the plan-2005. It is a decade long project of the DRDO for meeting 70% of the military hardware requirements with national resources. Plan-2005 also envisages the production of vital spares for India's defence equipment.

**Advanced Light Helicopter (ALH)** : ALH is a twin engined cost effective, multi-purpose and multi-role helicopter with rugged design to meet the stringent requirements of the armed forces. It has been designed and developed by the Hindustan Aeronautics limited. It incorporates state of the art technology to meet the diverse operational requirements of the Air Force, Navy and the Army. It has a maximum continuous speed of 230 kmph and a cruise speed of 245 kmph. It has a range of 800 km and an endurance of four hours with a 20 minute reserve.

**Hans-3** : Training aircraft is developed by scientists of National Aerospace Laboratories, Bangalore on 11 May, 1998. This aircraft is made of light and strong Fibre Glass with a total weight of 750 kg. Taneja Aerospace and Aviation Ltd., Bangalore is producing it commercially.

**Sukhoi-30** : It is a fighter aircraft produced

Russia. Recently India and Russia signed a pact, in which Russia will give 30 Sukhoi-30 mk craft and its technology to India. Its minimum range is 3000 km. It is world's one of the most modern fighter aircraft.

**Sanghukta :** On May 1996 Defence, Electronics and Research Laboratory, Dheradoon has developed a cumulative electronic war programme, named SANGHUKTA to be trained by Indian army electronic war.

**Saina :** This is an modern Torpedo developed by Navy Science and Technology laboratory, Vishakhapatnam. This Torpedo has capability to be launched from both Helicopter and Ship. It has 35 kmph and 200 kg weight can attack on a ship 35 km long Saina attacked on 6 km away target.

**Pichora :** Surface to air missile is in progress of development. This missile technology is imported from Russia.

**Infec-T-80 :** Super speed attacking ship Infec-T-80 is assigned in Indian Navy on 24 June, 1998.

**Avtar :** Under the leadership of Abdul Kalam Indian scientists are trying to develop the modern multi-purpose self-propulsion space rocket 'Avtar'. This rocket will keep vigilance on satellites and place small communication and navigational satellites on lower sphere of the space. Primary cost of this rocket will be Rs. 8000 crore. One Avtar will be used 100 times.

**Vikrant :** 2000 ton weight, 700 ft. long, 128 ft width, and 24 ft deep ship Vikrant was produced by Britain and commissioned in Indian Navy 1961 and has done a great job in 1971 Indo-Pak war. On 31st January 1997 it was retired from Indian Navy.

**Virat :** After retirement of Vikrant, Virat is forming main guard of India coastline. 28,500 ton weight, 750 ft long, 90 ft width, and 27 ft deep ship has more capacity than Vikrant produced in England of Hariz., Virat commissioned in Indian Navy on 12th May, 1987. It will service India for 20 years.

**I. N. S. Delhi :** Indigenous made ballistic missile ship I.N.S. Delhi was commissioned in Indian Navy, Mumbai on 15 November 1997. It has

weighed of 6700 ton, 163m long, 70 m width and 6.4m height warship.

**Inns. Prahar :** World's fastest missile ship INS Prahar was commissioned in Indian Navy on 1 March, 1997.

**Warship Ghardiyat :** This water surface attacker warship commissioned in the Indian Navy on 14 February 1997 at Calcutta's Gardenich Navy port.

**INS Mysore :** Indian Navy's most modernised indigenously built warship INS Mysore was commissioned on 2 June, 1999 at South Mumbai Navy Port by Indian Prime Minister Shri Atal Bihari Vajpayee

## Education in India

Education is an important institution in any modern or modernizing society. Historically, education has passed practically every sphere of human life. Learning in India, through the ages, was sought not for its own sake, but for the sake and as a part of religion. It was regarded as a means of salvation or self realisation, as the means to



the highest end of life, viz 'Mukti' or emancipation. It is therefore obvious that, ancient India education is to be understood as being ultimately the product of Indian theory of knowledge and corresponding scheme of life and values.

The Upanishads mentioned three steps of education, namely 'Sarvana', is listening to utterance or texts. It was a system of oral tradition. It assumed the form of mantras or sutras by which the maximum of meaning was compressed within minimum of words. 'Manana' is deliberation or reflection on the topics thought. 'Nidhidhyasana' by which truth could be realised and attained. This could be taken as highest stage of meditation. An idea of the working of a school as whole in order to accomplish the three essentials of education. Broadly speaking there were three types of educational institution namely Gurukula, where the students availed himself of the opportunity to accomplish his life and character on the pattern of the idealistic life of his teacher by living in close contact with him. The 'Panshad' (academies) provided the forum where students belonging to the higher order of learning gathered and sought further enlightenment through discussions and talks.

Organised system of education came into assistance more during the Buddhist period. Many educational institutions to teach Pali and Sanskrit for primary and higher education were established. This brought monastic schools into existence. However, later on, the monastics assumed the form of big viharas for education. Some of them rose to the status of Universities, the most notable among them are Nalanda and Takshasila. The monastic college more neither sectarian in their outlook nor purely theological in their course of study. The Buddhist universities raised the international standard and attracted the student from Korea, China, Tibet and Java.

The last impact on the traditional system of education in India was that of Muslim rule, which was established somewhere about 10 century A.D. The mosque, became the centre of instruction and of literary activities. Muslim educational institutions came to be known as 'Maktabs' and 'Madarshas'.

Maktab was primary school attached to a mosque and 'Madarsha' on the other hand, school or college of higher learning. The essential aim of Muslim education was to acquaint the people with muslim civilisation, languages and the propagation of Islamic principles. The advent of the British rule marked a clear departure from the traditional system of education and a new era in education was ushered in. The British administration accomplished traditional gurukulas, schools, and Madarsas. It was significant, when British Administration conducted educational surveys between 1820 to 1848 in Bengal, Bihar, Madras and Bombay Presidencies which showed that almost every village had a school. On the other hand Bengal and Bihar had about one lakh full-fledged school around 1830. The British government had introduced English education in India, after the advice of Macaulay in 1835, in order to make clerks available for offices. Macaulay's policy symbolized the rise of radical asymmetry in British.

The British rulers, by trial and error, worked out a system of education which was broadly divided into three major stages viz primary, secondary and higher education. This pattern not only became the bases of modern education during the British rule, but has catenated to be the major framework even after independence. Implementing English the medium of instruction, the British rulers adopted a policy of concentration to a small section of the population and left the task of educating the masses in native languages. This policy was described as the "Downward Filtration Theory". The British ruler adopted the policy of making education a commodity to be purchased from the market from various suppliers. However, it should be noted that just as British rulers inaugurated a socio-economic order, which was theoretically founded on the individual as a unit and also made education secular and open to all.

During the 19th century, education became one of the recognized responsibilities of most modern states. What T.H. Marshall has called a 'social right'. Even during the British periods efforts were made to give new direction to education.

a towering personalities such as Lokamanya lak, Sir Sayyid Ahmed Khan, Pt. Madan Mohan alviya, Rabindranath Tagore, Mahatma Gandhi, Zakir Hussain.

The importance of higher education accelerated markedly after independence in 1947. It received a new impetus and emphasis was laid on the education of the children from weaker sections of society. In spite of limitations, education has been one of the most resources. This is reflected in the National Policy on Education of 1986. This policy lays special emphasis on spreading knowledge, instilling a sense of purpose, to accelerate the process of social change, to develop social consciousness, growth of scientific moral, delicious social values through education, arrangements for vocational education, improving teachers' orientation, those knowledge and skills and restructuring education system in such a way that society is built which is based on social, political and economic justice and equity of opportunity to all Indian citizens. In spite of all these objectives, the thrust areas viz adult literacy, primary education, decentralisation of management of education and technical education have been identified to make education relevant to the need of the community and also meet new challenges of economic reforms and globalisation. There was a programme of Action 1992 of the NPE, 1986 involves to ensure free and compulsory education of satisfactory quality to all children upto 14 years before we enter the 21st century.

Primary education was given over riding priority in order to realise the goal of Universalisation of elementary education. During the 9th year, the declaration of education as an aspect of fundamental human right to life. The 'Operation Blackboard' scheme had been formulated with a view to bringing about substantial improvement in elementary school run by government, local bodies and recognised aided institutions. There was a consensus that the nation, as a whole would assume the responsibility of providing resource support for implementing programmes of educational reform, reducing disparities, scientific and

### 83rd Amendment Act, 1997

The United Front Government in 1997 introduced a bill, the 83rd Constitutional Amendment Bill, to make education compulsory. The bill meant to make the right 'to free and compulsory elementary education a fundamental right and ensure it through suitable statutory measures'. The bill proposed to amend Article 21 by introducing the clause "There shall provide free and compulsory education to all citizens of the age six to fourteen years." Only Tamil Nadu proposed a law for compulsory education, but it is yet to be implemented.

technological research and involvement of women and encouragement of female education.

In a landmark judgement the Supreme Court of India in July 1992, declared education is a fundamental right and the state is under a constitutional mandate to provide educational institutions at all levels for the benefit of citizens. Later, the Supreme Court modified its judgement (1993) so as to confine the scope to elementary education what the citizens of the country have a fundamental right to education. Every child/citizen of this country has a right to free education until the completes the age of 14 years. On the other hand, Article 45 of the constitution of India, states that the state shall endeavour to provide, within a period of ten years from the commencement of this constitution, for free and compulsory education for all children until they complete the age of fourteen years. The mentioned judgements of the Supreme Court assume almost significance.

The judgements of the Supreme Court had started a process in constituting the Mukti Ram Saikia Committee (1997), to consider the implications of making elementary education a fundamental right. However the committee did not suggest central legislation making elementary education compulsory. But it suggested government should be required to provide accessible schooling facilities to all and parents should treat it as their fundamental duty to send their children to school. There are those who feel that the existing

## Statewise literacy rates in percentage

State	1991	1997
1. Mizoram	82.27	95
2. Kerala	89.81	93
3. Nagaland	61.1	84
4. Sikkim	56.9	75
5. Meghalaya	49.1	77
6. Himachal Pradesh	63.86	77
7. Assam	52.9	75
8. West Bengal	57.7	72
9. Tamilnadu	62.66	70
10. Karnataka	56.0	58
11. Madhya Pradesh	44.2	56
12. Uttar Pradesh	41.60	56
13. Rajasthan	38.55	55
14. Orissa	49.1	51
15. Bihar	38.50	49
16. Andaman & Nicobar Islands	73.02	97
17. Lakshadweep	81.78	96
18. Pondicherry	74.14	90
India	52.21	62
Urban	73.1	80
Rural	44.7	56
Female	39.29	50
Male	64.13	75

Source Annual report 1998-99  
Ministry of HRD, Government of India

provisions of the constitution, for example, Articles 39, 41, 45, 46, take care of what is intended in the amendment

But the amendment needs for a variety of reasons. Firstly, it will induce the state and the people to make a special effort towards reaching this goal. Secondly, Compulsory school education has been a part and parcel of the civilized world. In as many as 161 countries, there are some degree of compulsion in school education. Only 23 countries have no legislation making education compulsory among which nine are in Africa and nine in Asia. Thirdly, the existing provisions are vague and ambiguous regarding the concept of education. As Article 25 refers to education and not formal schooling. Although, non formal, informal, literacy campaign and any sorts of education

equivalent to formal education. Fourthly, the existing Legislation only indicate what the state government has the power to make education compulsory. Fifth, it is also the experience that voluntarism did not work during the last fifty years either on the part of the government or on the part of the people. A proper national legislation, in last may make it truly compulsory in spirit and effect.

Proper mechanism have to be developed for enforcing compulsion. It is also argued that there is no ethical justification to compel the parents to send their children to poor quality school. Similarly, compulsion could cause hardship to the poor in the short run as children are withdrawn from the labour market. In the interim, the government has to develop a package of financial and other incentive for the poor, after all, as the abolition of child labour is also an explicitly stated goal of the government, so a financial package would serve a twin purpose. Thus, elementary education makes for a human resource development, which involves a better absorption of new information, new processes of production and through all that a better contribution to productivity and growth. It has been observed that while decline in illiteracy tend to reduce the fertility and infant mortality rates.

The Indian constitution specifies the attainment of universal elementary education among the Directive principles of state policy. This objective has not yet been achieved and that nearly half of the India's population remains illiterate. Even more disconcerting is the fact that literacy rate and education levels among the disadvantaged groups (women, scheduled caste, tribes and religious minorities) remain much below that of the rest of the population. Corrective action will, of course, require massive increase in public outlay to expand and improve school facilities, appoint adequate teachers, and strengthen incentives for enrolment and effectiveness and greater involvement of the local community and in decision making body. The only possibility appears to be a national effort in which the community, teachers, Planners and policy makers take a lead.

## India's literacy rates on the rise

It was in 1991 that the census for the first time gave us reason for optimism regarding India's literacy rates. It was in that year that India's literacy rates crossed the half-way mark. 52.21 per cent with male literacy at 64.13 per cent and female literacy at 39.29 per cent. The 53rd round of the National Sample Survey Organisation (NSSO) has indicated that literacy in this decade has shown dramatic improvement. As per available data, literacy rate in 1997 and 1998 were 62 and 64 per cent respectively.

Mizoram has overtaken Kerala and now holds the top spot with 95 per cent literacy. Kerala, which is now in second place, has gone from 89.91 per cent in 1991 to 93 per cent in 1997. Among the southern states, Tamilnadu continue its inexorable march jumping from 62.66 per cent in 1991 to 70 per cent in 1997. Whereas among the Hindi-speaking states, Himachal Pradesh leads with 77 per cent literacy. Rajasthan has also moved forward from 38.55 per cent in 1991 to 55 per cent in 1997; Uttar Pradesh has moved from 41.6 per cent to 56 per cent; Bihar from 38.5 per cent to 49 per cent; Madhya Pradesh from 44.2 per cent in 1991 to 56

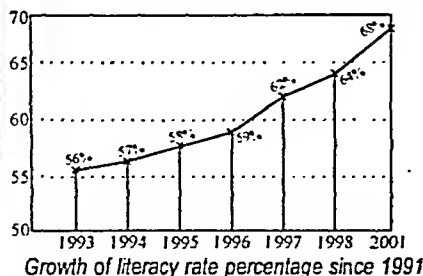


per cent in 1997.

Other states have also shown remarkable improvement in their literacy performance. Sikkim has moved 22.1 per cent points forward from 56.9 per cent (1991) to 79 per cent (1997). Assam has moved from 52.9 per cent to 75 per cent and West Bengal has marched from

57.7 per cent to 72 per cent. In the north-east apart from Mizoram, Meghalaya and Nagaland have done well. Meghalaya has moved 27.9 percent points forward from 49.1 per cent to 77 per cent and Nagaland has gone up by 22.4 per cent points from 61.1 to 84 per cent. Among the Union Territories, Andaman and Nicobar Islands is now at 97 per cent, Lakshadweep is at 96 per cent and Pondichery is at 90 per cent. States which have not shown much improvement are Orissa which has moved from 49.1 per cent in 1991 to 51 per cent in 1997 and Karnataka which has moved from 56.0 (1991) to 58 per cent (1997).

According to the NSSO survey, rural literacy has grown at a much faster pace than urban literacy during the intervening years. As per the 1991 census, the urban and rural literacy rates were 73.1 per cent and 44.7 per cent respectively, the NSSO reveals that urban literacy rates are 80 per cent and rural literacy rates are 56 per cent. According to the NSSO survey, female literacy has risen by 11 per cent during 1991 and 1997 whereas the male literacy rate for the same period has gone up by 9 per cent. The NSSO projections says that by the year 2001, the literacy rate in the country will be 68 per cent.



government and other agencies face a supporting rate. Further delay would only shift the target to more distant future.

Wide spread illiteracy prevails in India because India have neither made primary education compulsory, nor have adequate resources to equip schools with basic infrastructure

and teachers. Some of the closely related problems are (i) child labour, (ii) absenteeism of teachers. To achieve the goal of universal education, legal compulsion and adequate public expenditure must be combined with social and political changes including changes in teacher and parent motivation. ■■



# CHRONOLOGY OF 20TH CENTURY

1901 : Feb : (12) The Viceroy Lord Curzon creates the North-West Frontier province between Afghanistan and the Punjab.

1902 : May : (1) Over 400 die in Dacca torada. July : (4) Death of Swami Vivekananda.

1903 : Jan : (1) A *darbar* is held in the old Moghul capital of Delhi to proclaim Edward VII king-emperor of India.



1904 : Indian University Act.

1905 : April : (4) Earthquake in Lahore kills more than 10,000 people. May : (6) 190 Tibetans died in a clash between British led Indian troops & Tibetan Militia at Gyantse, on the road of Lhasa. Aug : (7) The INC declares boycott of British goods marking a protest against partition of Bengal. (20) Lord Curzon resigns as Viceroy of Indian. Oct : (6) The partition of Bengal.

1906 : Formation of the All India Muslim League at Dhaka. The word 'Swaraj' used for the first time at Calcutta session.

1907 : May : (7) First electric train started in Bombay. Oct : (4) Nationalist riot in Calcutta following the visit of the Independent Labour Party MP Keir Hardie who accused the British government of running India "like the Czar runs Russia". Dec : (27) The Surat session of the INC rent by recriminations and violence.

1908 : Jan : (30) Mohandas Gandhi released from prison in South Africa. Oct : (2) Hundreds feared killed in flood at Hyderabad. Newspaper Act passed and Kundiram Bose langed in this year.

1909 : Jan : (5) Hindu-Muslim riot in Calcutta. Indian Councils Act or Morley Minto Reforms Bill passed.

1911 : Dec : (12) King George V visits India. Partition of Bengal revoked; Delhi made capital of

India.

1912 : April : (1) Officially India's capital shifted from Calcutta to Delhi. May : (18) *Pundali* first Indian film, released. *Gitanjali* published by Rabindranath Tagore. Bihar and Orissa became separate state.

1913 : May : (3) India's first feature film *Raja Harishchandra*, released. The film was made by D.G. Phalke. Dec : (1) The Nobel Prize for literature has been awarded to Rabindranath Tagore for *Gitanjali* (Song Offerings).



1914 : First Conference of Science Congress.

1915 : Jan : (9) Gandhiji returns from South Africa to India. Feb : (19) Gokhale dies. March : (6) Meeting of Gandhi and Tagore for the first time. June : (20) First Women's University established at Pune.

1916 : Radicals take over the Indian National Congress. Lucknow pact between Muslim League and INC.

1919 : March : (1) Gandhiji started *satyagraha*. April : (6) Gandhiji called a *hartal* after Rowlat Bill was passed. (13) The Jalianwalla Bagh massacre at Amritsar. Montague Chelmsford Reforms. Indian Security Act passed. Third Afghan War.

1920 : Aug : (1) Tilak dies. Sept : (10) The Indian National Congress votes to adopt Gandhiji's programme of non-violent non-cooperation with the Indian government.

1921 : Feb : New Indian Central Legislature opened in Delhi. July : (28) Congress party adopted to boycott foreign cloth and visit of the Prince of Wales to India. Nov : (17) Riots Broke out in Bombay when Gandhi burns foreign cloth during the visit of prince of Wales. Census started in India.

**1922 : Feb :** (5) Chawri-Chura incident. (13) The INC suspends its civil disobedience campaign. **March :** (10) Arrest of Gandhi (18) Gandhi sentenced to six year "simple imprisonment" on charges of sedition.



**1923 : March :** (24) The salt tax is restored. **April :** (8) Plague in India. Madan Mohan Malviya started 'Indian Party'. Mill workers established Gimi labour Union in Bombay.

**1924 : Feb :** (24) Gandhi released from prison. **April :** (6) 25,000 die in plague. **Sept :** (18) Gandhi goes on a hunger strike for 21 days.

**1926 : April :** (24) The first Hindu-Moslem riots for many years breaks out in Calcutta. Royal Commission on Agriculture.

**1927 : Jan :** (8) The first scheduled London-Delhi flight arrives in Delhi. **Sept :** (6) Hindu-Moslem riots at Nagpur. Indian Naval Act passed. Appointment of Simon Commission. Divide of Muslim League.

**1928 : Feb :** (3) Arrival of Simon Commission, Congress boycotted it. **Aug :** (15) Moti Lal Nehru report is out demanding the constitutional framework of a free India. **Dec :** (17) Lala Lajpat Rai dies. (20) Olympic gold medal in hockey goes to India.

**1929 : May :** (27) Pandit Nehru calls for rebellion if India does not get dominion status by the year's end. **Aug :** (21) Gandhi is elected president of the INC, but refuses to accept. **Nov :** (5) 116 miles electrified railway line between Bombay and Poona opens. **Dec :** (21) Lahore session under the presidency of J. Nehru passed the resolution for complete independence. (31) Gandhi called for "Swaraj" (self rule).

**1930 : April :** (6) Defying of British salt tax by Gandhi, Dandi. **May :** (31) Many measures are introduced to curb civil disobedience following the arrest of Gandhi on fifth May. **June :** (23) Simon Commission recommends a federal India. **Dec :** (10) Nobel prize in Physics to Sir Chandrasekhara Raman.

**1931 : Jan :** (26) Gandhi released from prison. **March :** (4) The viceroy agrees to end the

governments salt monopoly in return for an end to civil disobedience. (5) Gandhi-Irwin pact. (25) Communal riots in Kanpur. **Sept :** (15) Gandhi in Second Round Table Conference demands for India's independence.

**1932 : Jan :** (4) Gandhi is arrested and the INC outlawed. **June :** (28) India lose their first cricket test at Lords. **Sept :** (24) The Poona pact is signed, extending the voting rights of untouchables. **Aug :** (16) Electoral arrangements (known as Communal Award) for provincial legislatures published.

**1934 : Nov :** (19) The INC wins almost half the seats in elections to the Indian legislative assembly. Formation of 'Congress Socialist Party' under the patronage of Acharya Narendra Dev. Factory Act passed.

**1935 : Feb :** (11) Government of India Act 1935 passed Separation of Burma from India.

**1936 : Feb :** (8) Nehru is elected president of the INC.

**1937 : April :** (1) The Indian constitution comes into being under the Govt. of India Act, 1935. Inauguration of Provincial Autonomy.

**1939 : Sept :** (3) Start of World War II. Resignation of State INC ministries. Establishment of Forward Block by Subash Ch. Bose.

**1940 : March :** (23) India's Moslems call for separate state in Lahore session for "autonomous and sovereign" Moslem states.

**1941 : Subash Chandra Bose escapes from India.**

**1942 : Jan :** (15) Gandhi names Pandit Nehru as his successor. **March :** (22) Cripps Mission arrives in India to find out formula for independence of India (29) The British reveal a plan for Indian independence after the Second World War **April :** (7) The INC Working Committee rejects British plans for India **Aug :** (8) Quit India Resolution by INC (9) Gandhi and other Congress leaders are arrested (August Movement)



1943 : Famine in Bengal.

1945 : Sept : (21) The INC calls for the freedom of India. Dec : (31) Trial of INA prisoners ends in Red Fort, Delhi. Simla Conference. Failure of the Wavell Plan.

1946 : Feb : (18) Rebellion in Indian Navy. Aug : (16) Celebration of 'Direct Action Day' by Muslim League. (19) Cabinet Mission arrives in India. Communal riots in Nuakhli and Tipra. Interim Government at centre-Nehru as PM. Dec : (9) First Meeting of Constituent assembly.

1947 : Feb : (20) Lord Mountbatten is the last viceroy of India. July : (10) Jinnah appointed first governor general of India. Aug : (15) Independence of India and Pakistan; violence and killing erupt by partition. Oct : (22) Invasion of Kashmir by Pakistani tribesmen.

1948 : Jan : (30) Assassination of Mahatma Gandhi. June : (8) Air India's first flight from Bombay to London. Sept : (17) Rebellion crushed in Kingdom of Hyderabad.

1949 : Jan : (1) India and Pakistan agree truce in war over Kashmir. April : (27) Republic of India created. Aug : (8) Treaty between India and Bhutan. Nov : (26) Constituent Assembly adopts constitution.

1950 : Jan : (26) India becomes a sovereign Democratic Republic; Dr. Rajendra Prasad becomes the first president of India. Feb : (28) Formation of Planning Commission. March : (1) Population of India announced. Dec : (15) Sardar Patel dies.



1951 : Feb : (28) Kashmir issue in the UN Security Council. March : (4-11) First Asiad game in New Delhi. Announcement of first Five Year Plan (FYP), 1951-1956

1952 : Jan : (24) India's first International Film Festival opens in Bombay. First general election of free India. Congress come to power. First session of first Lok Sabha.

1953 : May : (29) Mt. Everest conquered by

Sherpa Tenzing and Edmund Hillary. Dea Shyama Prasad Mukherjee. Andhra Pradesh ated on the basis of language.

1954 : Feb : (3) 500 die at Allahabad (Kumba Mela) April : (2) Nehru calls for a halt to built up nuclear weapons. Chin premier Chu-n-Li signed 'Panchsheel' on his India tour. Oct : Nehru China Pondicheri become 'Union Territory dia.

1955 : Aug : (20) India breaks off relations with Portugal.

1956 : Jan : (19) Nationalisation of Insurence. Nov : (1) Indian states reorganised on linguistic basis. Aug : (6) Establishment of Nuclear reactor Apsara in Bombay.

1957 : Jan : (20) Apsara, India's first atomic research reactor inaugurated. April : (5) Asian elected communist government installed in Korea. Second general election. (1) Introduction of decimal system in Rupee.

1958 : Sept : (27) Mihir Sen, first Indian to cross English Channel. India rejects Graham's proposal on Kashmir. First Atomic reactor completed. effect. Nun-Nehru pact to resolve border issues.

1959 : Feb : (2) Indira Gandhi elected president of the Congress party. April : (19) India grants sanctuary to Dalai Lama. July : (31) Presidential rule imposed on Kerala.

1960 : Water Pact signed between India and Pakistan.

1961 : March : (4) India's first aircraft carrier INS Vikrant commissioned. Oct : (20) China attacks on Laddakh and Nafa region. Emergency declared. Nov : (21) China declare end of war. sided. Dec : (19) India annexes Goa from Portugal. guese.

1962 : Oct : (20) Chinese attack on India. Nov : (21) China, the winner, halts their advance into India.

1963 : Gold Regulation Act come into effect. Rajendra Prasad dies. Democratic system started in Union Territories. Some cabinet ministers resign due to adoption of K

Plan in Congress. Completion of Bhakra-Nagdal dam. Statehood to Nagaland.

1964 : May : (27) Nehru dies. June : (9) Lal Bahadur Shastri becomes the PM of India. Formation of Communist Party of India (Marxist).

1965 : April : (9) Indo-Pak war. (20) First Indian team led by M.S.Kohli ascends the Everest. Indo-Pak war come to an end with the resolution passed by the UN Security Council.

1966 : Jan : (11) Tashkent Pact signed between India and Pakistan. (19) Indira Gandhi becomes the PM of India. June : (5) Devaluation of Indian Rupee by 36.5 percent. Nov : (17) Rita Faria crowned Miss World. Homi Vhaba dies in an air crash.



1967 : Fourth general elections, Congress regained majority at the centre. Indira became PM. May : (31) Jakir Hussain becomes president. National Language (Amendment) Act passed.

1968 : May : (29) Dara Singh wins world wrestling champion.

1969 : May : (3) President Zakir Hussain dies. V.V.Giri elected president of India. July : (19) Nationalisation of 14 leading banks. Split in Indian National Congress. Madras renamed as Tamilnadu.

1970 : Nov : (21) C.V. Raman dies. President's rule in Bengal and Kerala.

1971 : Aug : (9) Indo-Soviet Treaty signed. Dec : (3) Second Indo-Pak war. (17) Defeat of Pakistan, liberalisation of Bangladesh. (18) Indira Gandhi receives Bharat Ratna.

1972 : Jan : (20&21) Meghalaya, Manipur and Tripura became full fledged states of India. Union territories of Arunachal Pradesh and Mizoram came into existence. July : (3) Simla Agreement signed by Indira Gandhi and Z.A. Bhutto. Dec : (25) C. Raj Gopalchari dies.

1973 : Revolution in Sikkim, Government of India took the administrative charge of Sikkim. Nationalisation of all coal mines. Mysore renamed as Karnataka.

1974 : May : (18) India conducts her first

nuclear explosion at Pokharan. Sept : (4) Constitution (Amendment) Bill passed making Sikkim as an associate state of India.

1975 : Jan : (1) Location of oil in 'Bombay High'. April : (17) S. Radhakrishnan dies. (18) Launching of Aryabhata. June : (12) Indira Gandhi's election set aside. (25) Proclamation of Emergency.

1976 : March : (23) Boundary pact signed between India and Sri-Lanka. May : (14) India and Pakistan agree to restore diplomatic ties. June : (11) Moscow declaration signed between Indira Gandhi and Brezhnev. Dec : (18) President gave assent to the 42nd Constitution (Amendment) Bill.

1977 : March : (24) Morarji Desai becomes first non-congress PM of India. Emergency withdrawn. July : (25) Sanjiva Reddy sworn in as President of India.

1978 : May : (15) Shah Commission holds Indira Gandhi responsible for abuse and misuse of power during internal emergency. Oct : (1) World's biggest literacy plan launched by India.

1979 : July : (15) Desai resigns as PM. Aug : (22) Dissolution of the Sixth Lok Sabha. Sep : (26) Lok Dal formed. Oct : (8) Jai Prakash Narayan dies in Patna. Dec : (7) Narmada Tribunal Awarded.

1980 : Jan : (14) Indira Gandhi sworn in as the PM. (25) Extension of reservation quota for further ten years. May : (9) Struck down of the 42nd Amendment. July : (18) Launching of first satellite using SLV

1981 : Jan : (17) The 8th International Film Festival in New Delhi. May : Launching of Rohini Satellite in space. June : (9) Rohini burns up.

1982 : Jan : (9) Indian scientific expedition headed by S Z. Qasim lands on Antarctica. Feb : (6) India sign an accord with France to purchase 150 Mirage-2000 jets. July : (15) Zail Singh elected as seventh president of India. Sept : (8) Shaikh Abdullah dies. Nov : (26) India signed Nuclear Fuel pact with France.

1983 : Jan : (13) Rohini 560 rocket successfully launched from the Sriharikota Range

March : (7) The 7th NAM summit in New Delhi. Aug : (30) INSAT-1B launched. Nov : (23) Commonwealth Summit in New Delhi.

1984 : April : (2) Rakesh Sharma in space. June : (6) Troops storm Sikh Golden Temple in Amritsar. Oct : (31) Assassination of Indira Gandhi, Rajiv Gandhi becomes PM. Dec : (2) Bhopal gas tragedy.

1985 : Jan : (3) The Parliament unanimously passed the Anti Defection Bill (10) Ravi Shastri hits six sixes to Tilak Raj in an over. Sept : (8) Assassination of H S Longowal, Akali Chief



1986 : Jan : (22) Beant Singh sentenced to death. June : (25) Congress (I) and Laldenga sign pact on Mizoram. Nov : (16) SAARC summit in Bangalore. Dec : (3) Parliament approved statehood to Arunachal Pradesh. (13) Smilita Patil dies.

1987 : May : (29) Charam Singh dies. July : (25) R. Venkataraman becomes President. Nov : (21) Soviet Festival Starts in New Delhi. Sept : (3) Viswanathan Anand becomes India's first Grand Master

1988 : Feb : (3) India joins the N-manne Club with induction of INS-Chakra (25) India's first surface to surface missile Prithvi launched successfully. March : (17) First remote sensing satellite IRS-1-A launched from Russia. Aug : (3) The Supreme Court confirms death penalty of Satwant Singh and Kehar Singh in Indira Gandhi Murder case.

1989 : Jan : (17) Indian national flag planted at South Pole. Feb : (14) Supreme Court decides compensation amount for Bhopal gas victims. March : (17) Hemvati Nandan Bahuguna dies. May : (22) Agni tested successfully. Dec : (28) Prasar Bharati and Lok Pal Bill introduced in Parliament.

1990 : Jan : (18) End of France Mahotsava in New Delhi. Aug : (6) V.P. Singh announced 27 percent reservation on the basis of Mandal Commission Report. (21) Indian warship Andaman sank in Bay of Bengal. Nov : (10) Chandra Shekhar

becomes PM. (30) Admiral Ram Dass takes over as Chief of Naval staff. Dec : (24) L.K. Advani leader of the opposition in Lok Sabha.

1991 : Feb : (5) 1.25 lakh Indians return from India from Kuwait. March : (6) Dissolution of Lok Sabha. May : (21) Rajiv Gandhi killed in a bomb explosion in Sriperumbudur. June : (21) Narasimha Rao becomes PM. July : (1) Devaluation of rupee. Aug : (6) New Small Scale Industrial Policy declared. Oct : (20) Earthquake in Garhwal, U.P. Nov : (22) Supreme Court held invalid of Kamath ordinance on Cauvery water.

1992 : Jan : (10) 23rd International film festival. April : (1) Eighth Five Year Plan becomes operative. (20) Indo-Turkmenistan trade pact signed. (20) Satyajit Ray dies. May : (11) U.S. imposed 2 year sanctions on ISRO. July : (9) INSAT-2A launched. (25) S.D. Sharma becomes President. Aug : (19) K.R. Narayan elected Vice president. Nov : (16) Supreme Court upholds government decision regarding Mandal report



1993 : April : (24) Panchayati Raj Act comes into effect. June : (5) Yamuna Action Plan launched. Sept : (30) Earthquake in Maharashtra.

1994 : March : (28) G-15 Summit meets in New Delhi. (30) Kasturirangan becomes new ISRO Chief. June : (3) Successful launch of Prithvi. Aug : (3) India's first heart plantation. Dec : (1) Jharkhand Council Act passed. (25) Giani Gurbachan Singh dies.

1995 : April : Iranian President Rafsanjani visits India. May : (5) CM's meet failed to get a consensus on TADA. (11) Pakistani mercenaries killed down Charar Shrine. July : (14) Supreme Court gives equal powers to other two Election Commissions. Aug : (3) Dabhol Project cancelled.

1996 : Jan : (8) Maharashtra government clears Enron Dabhol power project. (12) Supreme Court holds that horse racing is not gambling but a game of skill. (18) N.T. Rama Rao dies. Feb : (11) 47th Republic Day celebrated.

World Cup Cricket inaugurated in Calcutta. (27) In Jain hawala case, non bailable warrants of arrest issued against 10 top politicians. **March** : (1) Supreme Court frees CBI from control of PM Narasimha Rao. (21) Supreme Court holds that attempt to suicide and its abetment are punishable offences. **April** : (10) Central Government cleared marketing of Salam Rushdie's novel *The Moor's Last Singh*. (28) Popular TV programme *Surabhi* completes 200 episodes. **May** : (2) Chandraswami sent to Tihar Jail. (28) 12-day old Vajpayee government quits Lok Sabha. **June** : (27) Viswanathan Anand marries Aruna. **July** : CEC T.N. Seshan wins Magsaysay award. **Sept** : (4) Narasimha Rao questioned by CBI. (6) CBI arrests 4 JMM leaders. **Oct** : (30) Narasimha Rao appears before chief Metropolitan Magistrate at the Vigyan Bhawan Annexe.

**1997** : **Jan** : (3) After 27 days in prison Jayalalitha released on bail. (18) Launching of phase II of Pulse Polio Immunisation programme. (23) 50,000 miners lose jobs in Orissa as 57 mines are closed down. (29) Supreme Court rules that water is a 'Mineral'. **Feb** : (3) Major fire in Calcutta Book Fair. (15) Inter Parliamentary Union conference in New Delhi. (23) Successfully test of Prithvi. **March** : (4) Govt. not to print Re.1, Rs. 2 & Rs. 5 as these are coined. (29) HRD Ministry launches National Culture Fund. **April** : (6) UN Sec Gen. Kofi Annan arrives in New Delhi. (21) I.K. Gujral sworn in as the PM. **May** : (14) Bajaj Auto announces 100% dividend for 1996-97. **June** : (4) Narasimha Rao discharged in St.Kitts forgery case. **July** : (1) India's first Scienc City inaugurated in Calcutta. (25) K.R. Narayan sworn in President of India. **Aug** : (15) India celebrates Golden Jubilee of Indian Independence. **Sept** : (17) Advance railway reservation period extended from 30 to 60 days. (29) Successful test of PSLV-C1. **Oct** : (12) British Queen Elizabeth II and Prince Philip arrive in India.

**1998** : **Jan** : (1) Professional blood donation banned. (14) M.S. Subbulakshmi is chosen for Bharat Ratna. (26) 49th Republic Day celebration. **Feb** : (21) Vajpayee announces fast-unto



death in protest against dismissal of Kalyan Singh government. (27) Supreme Court upholds reinstatement of Kalyan Singh government. **March** : (1) Bharat Ratna to Abdul Kalam Subbulakshmi, posthumously to Aruna Asaf Ali, Satyajit Ray and G.L. Nanda. (7) Jain Commission submits its final report on Rajiv Gandhi Assassination case. (19) EMS Namboodripad dies. (21) Train service in Konkan railway begins. (28) A.B. Vajpayee led coalition government wins the vote of confidence in the Lok Sabha. **April** : (12) Bharat Ratna to C. Subramoniam. (22) World's oldest dam unearthed in Dholavira, Kutch. (24) India beat Australia in Coca Cola Cup at Sharjah. **May** : (10) Industry status granted to Indian film industry. (11) Pokhran-II; Trishul test fired at Chandipore, Balasore. (12) Sanctions imposed on India; retirement age increased by 2 years to 60 years. (20) Multibarrel rocket system 'Pinaka' successfully test fired from Chandipore. (23) Sambalpur in Orissa records highest temperature at 47.5°C in 110 years. **June** : (4) Loo claims 1782 lives in Orissa. **July** : (8) PM's Task Force on IT and Software Development industries. Bangalore, New Delhi, Hyderabad, Bhubaneswar and Pune as first five hightech cities. (18) Maharashtra bans performance of controversial play on Nathuram Godse. **Aug** : (21) CBI raids on the house of Laloo Prasad Yadav. **Sept** : (11) First engineering college exclusively for girls starts in New Delhi. **Oct** : (14) Amartya Sen wins Nobel Prize for Economics. (24) Buddha Mahotsav, first Buddhist festival in India, opens. (31) A.Y. Tipnis appointed new chief of Air Staff. **Nov** : (6) About 50 die as bus falls into Mahanadi river in Orissa. (26) Around 150 killed in a major train accident in Khanna (Punjab). **Dec** : (17) Lok Sabha passes bill for capital punishment to those causing explosion by RDX, PETN and other explosives.

**1999** : **Jan** : (7) Four Shiv Sena activists arrested for damaging cricket pitch at Feroz Shah Kolla. (8) First bus service between Delhi and



Lahore. (11) Four scientists of DRDO killed in an air crash near Arakkonam (14) 51 devotees killed in a stampede at Sabarimala in Kerala. (18) Amritya Sen conferred Bharat Ratna. (30) Bharat Ratna to Ravi Shankar and posthumously to Gopinath Bordoli. Feb :

(9) Onssa CM J.B. Patnaik quits. (12) Bihar put under Central rule (13) Censor Board cleared controversial film *Fire*. (21) Lahore Declaration signed between Vajpayee and Sharif. (27) Yashwant Sinha presents second budget of BJP government. March : (8) Govt. revokes central rule in Bihar. (9) Rabn Devi becomes CM of Bihar (13) Parliament approves Patents Bill. (18) 35 killed in caste war in Bihar. (24) EC derecognises



Samata party as a National party. (26) New Telecom Policy announced April (3) India's multipurpose telecommunications satellite successfully launched from French Guyana (8) PM inaugurates the tercentenary of Khalsa in

the Golden Temple (11) Successful test firing of Agni-II, having a strike range of 2500 km (14) President asks Vajpayee to seek a confidence vote in the Lok Sabha (17) BJP led govt loses vote of confidence by a single vote 269 to 270. (21) Railway and general budgets 1999-2000 passed without debate (25) Despite Sonia's best efforts; Congress (I) admits its failure to form an alternative govt. (16) Sonia Gandhi resigns as Congress President. (20) CWC expels Pawar, Sangma and Anwar. (25) Sonia Gandhi withdraws her resignation. (28) IAF helicopter shot down (29) Pakistan-backed intruders trying to open new battle fronts in Ladakh. June : (3) Flight Lieutenant Nachiketa released unharmed by Pakistan. (19) Vajpayee inaugurates the first run of the Calcutta-Dhaka bus service. (24) IAF jets pound Tiger Hills paving the way for the way for the complete



eviction of intruders in Dras. (2) Indian High Commission official assaulted in Pakistan. July : (15) Maharashtra State Assembly dissolved six months ahead of term. (18) Operation Vijay ends as govt says that no intruder is left in Indian ter-

itory. (21) US slaps fresh tariffs on Indian steel. India ratifies extradition treaty. (26) Cabinet announces Rs. 340 Cr. upgradation package for Doordarshan and AIR in J&K. (28) EC disenfranchises Bal Thackeray for six years. Aug : (2) In gruesome train accident at Gaisal in WB, over 400 killed and many injured. (17) Govt. releases draft of country's nuclear doctrine. (27) EC announces that it has not barred political parties from debating the Kargil issue. Sept : (2) A Roman Catholic priest Arul Doss killed by irate tribals in Jambani village in Orissa's Mayurbhanj district. (9) Supreme Court refuses any interim relief to the EC over its order banning exit and opinion polls till the end of elections on October 3. (1) The EC withdrew its controversial guidelines. (2) The indigenously built second unit of the Kaiga nuclear power project at Kaiga in Karnataka attains criticality. (28) Harshad Mehta sentenced



five year's rigorous imprisonment by the Special court. Oct : (1) 13th Lok Sabha constituted. (1) Vajpayee appointed PM. (1) Sonia Gandhi elected leader of the Congress parliamentary party. (22) G.M.C. Balayogi elected

Speaker of the Lok Sabha by consensus. CBI files chargesheet against Quattrocchi, Win Chandra Rajiv Gandhi in the Bofors case. (29) Severe cyclone ravages 12 districts of coastal Orissa killing more than 10,000 people. Nov : (5) Pope John Paul II arrives in Delhi on a state visit. ■■



# CULTURAL MOSAIC

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# CULTURAL UNIFICATION OF INDIA

A brief summary of the history of India helps us in understanding the process of cultural unification. Recent discoveries indicate that round about 3000 B.C. there was a developed civilisation in the north western and northern regions of India. Popularly described as the Indus Valley Civilisation, we had till recent times evidence of its existence only in Mohenjodaro and Harappa. In the last decade, however, traces of this civilisation have been found in the Sutlej Valley, in Jaisalmer, in Rajasthan and as far south as Lothal near Ahmedabad.

Who the people of Mohenjodaro and Harappa were, and where they came from cannot be said with any uncertainty. The available remains indicate striking similarities with people of Sumer, but historians offer different explanations of the similarity. Some are of the view that the civilisation spread westwards from the Indus basin till it reached the banks of the Euphrates and the Tigris. Others hold it that it came to India from Sumer. Be that as it may, it had around 3000 B.C. attained a high degree of maturity. One is thus justified in holding that its beginnings must go back perhaps another 500 years. The Indus Valley Civilisation is the first recognisable ingredient in the development of Indian culture. Its influence has persisted to this day and some historians declare that it is the true progenitor of modern India.

According to one hypothesis, the most important influence of Mohenjodaro civilisation is to be found in the pacifist temper of the Indian people. The people of Harappa and Mohenjodaro seem to have developed a pacifist attitude which according to some historians was one main reason for their defeat at the hands of the Aryans. In the

scale of civilisation, the Aryans were perhaps inferior to the people of Mohenjodaro, but their aggressive character and their superiority in art of warfare gave them the victory.

As far as is known, the Aryans started coming into India round about 2000 B.C. This was not immigration on a mass scale and there was probably no great movement of peoples. They came in trickles, over many decades, if not centuries, through the mountains that guard the north-western frontiers of India. They were a pastoral people and cattle seem to have been chief wealth. Although their earliest verses contain many references to agriculture. Unlike the people of Mohenjodaro, they had probably learnt the use of iron and tamed the horse. These gave them superiority in warfare over the people of Mohenjodaro and made the Aryan conquest of India possible. The Aryans settled down in villages and began to develop the pattern of rural life which has remained basically unchanged to this day. Their social institutions, religious beliefs and forms of worship were influenced by what they found prevalent in India, but they in turn influenced the life of the indigenous people. It is not certain if the Aryans brought the Vedas with them or composed the Vedas and hymns after their arrival in India. In any case, for the vast majority of the Indian people, the Vedas became the repository of religious faith. In faith in belief in God and the Vedas and in the transmigration of the soul are almost the only articles of faith for a Hindu. The Aryan influence is also seen in the occupational division of society into four major castes and in the fourfold division of the life of the individual. The new Aryan society which developed in India between 1500 B.C. and 1000 B.C.

B.C. is to this day the basis of the life of the Hindus who constitute the vast majority of the Indian people.

There are no regular histories of early phase of Aryan settlement in India. A picture of the life of the people can, however, be obtained from the epics and other literature. Of the epics, the most important are the Ramayana and the Mahabharata. Rama and Krishna dominate these two epics. It is interesting to note that both Rama and Krishna were conceived as dark in complexion. The Aryans were fair, and in the earlier phases of their settlement in India, extremely proud of the fact. The contempt with which they referred to their dark-skinned enemies would bring joy to the most fanatic votary of white supremacy. How and why they accepted the dark skinned Rama and Krishna as heroes and gods is not known. It may however be regarded as an act of supreme statesmanship which went a long way in winning over the native inhabitants of the land. With the age of Buddha and Mahavira we come into historical times. Round about the sixth century B.C., there seems to have been a great intellectual and spiritual ferment throughout the whole of then known world. Confucius in China and Zoroaster in Iran were near contemporaries of the Buddha. This was also the period which saw an outburst of spiritual fervour among the Jews of Palestine. Whatever be the reasons for this spiritual efflorescence it led to religious movements which have had far reaching influence.

The impact of Buddha has been one of the most significant in the history of man. His was perhaps the first attempt to solve the mystery of existence in rational terms and without recourse to mysticism. He emphasised good conduct and taught the eight-fold way by which man can live at peace with his fellows. He broke away from ritualism and the rigours of caste which had become characteristic of Indian society. His influence did not remain confined to India but in course of time spread throughout the world.

At first definite date which helps to fix Indian

chronology was the invasion of Alexander in 326 B.C. Alexander did not penetrate far into India as a result of this invasion, a great deal of information about India became available to the western world. He had brought with him a number of Greek philosophers, scientists and historians. Aristotle, it is said, wished to discuss with an Indian philosopher the Indian solution to problems of metaphysics. There is a legend that Alexander took away with him a number of Indian scholars to satisfy the wish of his teacher. It is certain that the earlier contacts between western Asia and India were further developed as a result of Alexander's invasion. Chandragupta Maurya was on the other hand a historical figure and organised a vast empire which stretched from Afghanistan to the boundaries of Bengal.

Under Chandragupta's grandson, Ashoka, almost the whole of India was brought under the sway of the Mauryan empire. Ashoka was a great champion of the Buddhist faith and did everything he could to expand the influence of Buddhism in India and outside. There was however no persecution against men who followed other religions and in one of his famous edicts Ashoka declared that a truly religious man has regard for all faiths. It was due mainly to his patronage that Buddhism spread beyond the shores of India. There are records of missions sent by him to Ceylon, western Asia and Egypt and it has been suggested that his missions also visited Burma, China and Japan.

Buddhism had suffered a setback after the fall of the Mauryan empire. By the time of the Guptas, it was no longer the predominant religion of the land. The Guptas were patrons of Hinduism but they did not persecute the Buddhists. In fact both kings and the common people did equal honour to the Buddhist saints and monks and the priests and gods of Hinduism.

Life was simple but specious. The state maintained law and order but the laws were mild and bore lightly on the people. We have an interesting account of the life and the times in the

writings of Fahien, the first of a famous series of Chinese pilgrims who came to India, the homeland of Buddhism.

Like the earlier empires, the Gupta empire also broke down partly on account of internal weakness and partly because of attacks by trans-Hindian tribes. These tribes were almost invariably absorbed in the Indian social pattern. In fact, till the Parsis came to India in the eighth century A.D., none of the incoming tribes had been to resist the fall of Hinduism. For one thing, many of these tribes did not have a developed culture of their own. For another, the occupational divisions of Indian society made it easy to fit them into an appropriate place in the social structure. From the ninth century onward, we find continual reference to a group of people called the Rajputs. They gradually replaced the kshatriyas as the ruling and fighting caste. The term Rajputs literally means the sons of kings. Their emphasis on royal origin and their insistence that they are the descendants of the epic heroes have often attracted comments. Many historians believe that most of them were in fact descendants of the tribes who came to India after the fall of the Gupta empire. Because they were newcomers, they were more anxious to establish their ancient genealogy.

Early in the seventh century, king Harsha again succeeded in establishing a unified empire in north India. His efforts to extend his sway to the south were however checked by Pulakeshin. With the establishment of law and order, various form of art and culture flourished. Agriculture and crafts and trades prospered. The restoration of peace was accompanied by general prosperity throughout India. Buddhism had lost its pre-eminence but it was still widely prevalent. Harsha was a patron of both Buddhism and Brahmanism and welcomed to his court Hiuen Tsang, perhaps the greatest of the Chinese pilgrims to India. He has left an extremely interesting record of the court of Harsha as well as of the life of the Indian people.

As in the case of the Aryans, the incursion of the Muslims into India was also spread over

centuries. We often think of the Arab invasion of Sind in the beginning of the eighth century A.D. as the first appearance of the Muslims on the Indian stage. Sinh may have been the first Muslim principality in India but the first Arab outposts in the country had been established almost a hundred years earlier in the far south. In fact, it is generally accepted that the immediate purpose of the Arab invasion of Sindh was to safeguard the trade routes with south India and Ceylon. In course of time the Arabs became a considerable force in these regions. Along with trade in goods, there was also commerce in ideas. It has been suggested that one of the reasons for the flourishing of religious and philosophical activity in the southern most corner of India in the eighth and succeeding centuries was the impact of a new and alien force on the indigenous culture.

Except in these two centres of Arab influence, the large majority of Muslims who came to India in different times were Turks, Afghans and Persians. Many of them were recent converts to Islam and had imbibed only some of the external of Muslim culture. This did not prevent them from regarding themselves as the standard bearers of Islam. Many of the Hindu temples were great repositories of wealth. They were also at times strong forts and occupied positions of strategic importance. Their subjugation was often necessary for military reasons. At the same time, they yielded rich plunder to the victor. An attack on the temple was thus tempting to the invaders for various reasons.

In discussing Muslim rulers of India, we must remember that the Muslims came in succeeding waves. They were in most cases armies of fighting men who did not bring their women with them and took local wives. Again, in many cases the alternatives for Indian prisoners of war were permanent slavery or acceptance of Islam. These facts combined with active proselytisation led to the growth of a sizeable Muslim population in the course of a few centuries.

Social customs of Hindus were also responsible for the growth in the number of Muslims.

Those who were low in the social scale found in Islam an opportunity to assert their dignity. The more sensitive among the socially privileged were often attracted by its democratic appeal. Besides, Hindu society looked askance at released prisoners of war and they often had no option but to join the Muslim fold. Such large-scale absorption of Hindus slowly changed the character of Muslim society. Even those who had originally come from outside gradually came to look upon themselves as Indians. There were many instances where Muslims and Hindus of India combined to resist a Muslim invader from outside.

Akbar was the greatest of the Mughals and a conscious integrator. His greatest contribution was the abolition of distinctions based on religion and the offer of equal opportunity of service and advancement under the crown to all Indians. Tolerance had been forced on many of his predecessors by force of circumstances. This applied particularly to the principalities that were established in outlying areas. Bengal and Gujarat had kings who were remarkably tolerant in their attitude to their non-Muslim subjects. This was equally true of the Bahami Kingdom and other principalities in south. Akbar's special distinction lies in his valuation of this practice to a principle of sovereignty. He also initiated a liberal social and religious policy which aimed at bringing about a fusion of the diverse elements which constitute the Indian people. In fact, he may in many respects be regarded as the creator of Modern India.

The Mughal dynasty would have been remarkable if it had produced only a Babar or an Akbar. In fact, it produced five or six generations of exceptionally able men. This partly explains the extent and duration of the Mughal empire and the hold it had on the imagination of the people. Another reason was Akbar's reorganisation of the administrative system. Though we cannot say that he established the rule of law, his reforms did to a large extent replace personal rule by governance according to rules. His policy was followed by his successors till the time of Aurangzeb.

The first contact between India and modern

## Cultural Realms

The term cultural realm signifies an area where fundamental unity in composition, arrangement, and integration of significant traits distinguishes it culturally from other regions. We distinguish two groups of cultural realms. One consists of four major regions (comparable to Toynbee's civilisations). The other has three minor ones. This division ignores some peoples such as the American Indian, Australian aboriginal, Bushmen and Eskimo.

### A. Major Realms (civilisation)

- I. Occidental (Western ; European)
- II. Main Islamic (North African-South West Asian : Arab - Persian)

### III. Indic (Indian ; Hindu)

### IV. East Asian (Sinitic)

### B. Minor Realms

### V. Southeast Asian

### VI. Meso-African (Negro African)

### VII. Southern Pacific

### Subdivision of the Occidental cultural Realm

Mediterranean Europe	Latin America
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(1) Maritime Europe	Anglo-America
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Northwestern Europe	South Africa
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Australia, New Zealand	
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Central Europe	
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(2) Continental Europe	
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Europe took place in 1448 when Vasco da Gama circled the African continent and landed at Calicut. The Portuguese established a small trading station and were at first traders, but from the very beginning they had imperial ambitions. Students of European history will remember that one reason why the Portuguese turned towards the East was the Pope's allotment of the western hemisphere to Spain.

The Portuguese were followed by the Dutch, the British and the French who were all attracted by the fabulous wealth of the East. It is difficult to say if these later comers had any imperial ambitions initially. When they first came to India, Mughal power was firmly established and they were content to get trade licences from

government. Though they began as traders they were soon tempted to share in the quest for empire. They had their trading stations on the outskirts of the empire, and at first fortified them for self-defence against robbers and other raiders. It was, however, almost inevitable that their struggles in Europe should be reflected in their trading posts in India. In course of time, these fortifications became centres of both defence and offence against one another as well as against Indian rulers.

When the Europeans first came to India, they were certainly inferior to the Indians in the arts of peace. In the science of war also, they were probably at first inferior, but nevertheless finally won in the struggle for power. There were many reasons for their ultimate triumph, of which three major ones may be briefly indicated here. The first was the break-up of the Mughal empire and the failure of any other Indian group to establish a strong central government. After the death of Aurangzeb in 1707, there followed a period of about 150 years when India was the scene of internecine intrigues and conflict. The second reason for the British triumph was the absence of Indian naval power. Technical progress was the third and decisive reason why the British were able to establish their empire in India. From the seventeenth century onward, Europe started on a career of triumphant scientific discoveries. In course of time, these led to a transformation of the technique of industrial production and the science of war. Asia as a whole had fallen back in

the race for knowledge and power. When therefore the clash came, Indian rulers were unable to stand up to the British.

The introduction of the western system of education in India was not at first encouraged by the Government of the day but the zeal of a handful of Christian missionaries and Indian leaders of vision and faith, overcame all administrative inertia. The work of missionaries like Carey and Indian leaders like Raja Ram Mohan Ray received a great impetus as a result of Macaulay's vehement support for Western education. With the establishment of the three Universities of Calcutta, Madras and Bombay the supporters of Western education had definitely won. Indian minds now had direct access to the scientific temper and the liberal political thought of the Western world. Whatever be our criticism of the defects of the existing system of education, there is little doubt that it is responsible for the Indian renaissance.

One ground of this adjustment is found in the spirit of toleration that has characterised Indian history throughout the ages. Throughout the changes of Indian history, we therefore find a spirit of underlying unity which informs the diverse expressions of the life. But the unity was never dead uniformity. Universality comes with it the demand for variety and particularity. Whatever universal cannot be exhausted in any one particular form. Unity and Universality must belong to any culture that is true and vital. ■■

# INDIAN CINEMA

Before Independence, film making was essentially a elite class pursuit geared towards providing alternative entertainment to theatre. The emotional aspirations of wide majority of masses were well - reflected in the many mythologicals, costume dramas, social comedies, musicals and crime thrillers chummed out by the "dream factories"

of Bombay, Calcutta and Madras. Patriotic films like *Bhuli Nai* (Bengali), *Veer Pandya Kattabomman* (Tamil), *Pehla Aadmi* (Hindi) etc. were manifestations of a cultural upsurge, inspired by the fervour of struggle against a foreign rule.

When the British left India, cinema acquired a different class character. The petty bourgeois



emerged as the key manipulators with sundry traders, money lenders, smugglers and the nouveau riche semi-literate taking over from the middle class. Together, they addressed themselves to a fast expanding working class who became the principal audience for this necessarily urban mode of entertainment.

### The 'Starry' Culture

The tradition was complete by the early 50s. Mehboob, Bimal Roy and Guru Dutt rose up as invincible titans of the celluloid world, guiding the passions of millions, through a curious amalgam of illusion and fantasy. While all their films - beginning with *Andaaz*, *Do Bighaa Zamin* and *Udayer Pathey*, onwards to *pyaasa* and *Mother India* - reflected varying degrees of social concern, each one also served as star vehicles for lesser mortals like Balraj Sahni, K.L. Saigal, Dilip Kumar, Raj Kapoor, Meena Kumari and Nargis. There were others to follow who helped in effectively establishing a star system, unique anywhere in the world.

For those who believed in the democratization of cinema, this evoked peculiar responses.

Ritwik Ghatak trusted more on his wide angles, avoided close-ups and demolished the archetypal screen hero. The mid-fifties also saw Satyajit Ray experimenting with a brand of "realism" that sought to raise the collective intelligence of audiences through Brechtian devices of alienation. These sensitive artistes displayed extreme respect towards their medium, while each sought to understand the social conflicts of their time rather than attempting to explain or expose. Both of them were responsible for introducing a "parallel cinema" with its peculiar angularities, a style system and a distinct set of codes and myths. Moreover, with the Brechtian format they had brought cinema so close to theatre, that Ray had to concede in 1980 - "My aim is to release cinema from theatricality".

### Parallel Cinema

Among contemporary film-makers, the most ardent disciples of Ghatak can be seen among Mani Kaul (*Uski Roti*, *Duvidha*), Mati Manas Kumar Shahani (*Maya Darpan* and *Tarang*) and Nirad Mohapatra (*Maya Minga*). Unlike illusionists who capture and mummify external reality they have all had their innings at "exploring psychological reality" - the relationship between man and nature - with fairly subjective interpretations of the fundamentals of existence. One could well draw parallels with their works and those of Robert Bresson, Yasujiro Ozu and perhaps, Jean-Luc Godard - only that this cinema of transcendence ended with the orchestration of impoverished visuals and pure sound. Thematically, each one continues to be haunted by the mother goddess myth, reminiscent of Ghatak's most popular film *Meghe Dhaka Tara*.

Indeed, the fertility cult appeared as recurrent motifs in all the eight films Ghatak made over two decades, but that essentially was the equation he sought to strike with his environment - the land of his adoption. As one inconsolably distressed over the partition of Bengal, he displayed an almost childlike longing in reaching out towards his motherland across the border - present!

## The National Film Development Corporation (NFDC)

The National Film Development Corporation (NFDC) came to the rescue in 1980 and the situation brightened a bit. Theatre construction activity stepped up, loans were granted to deserving film-makers, avenues for exports explored, participation in foreign festivals improved and film weeks organised- all in a bid to spread the message of good cinema around. The major beneficiaries of the schemes were, of course, the young enterprising film graduates from the Film and Television Institute in Pune, who would otherwise have never found an audience for themselves. On the surface, cinema appeared healthy and vibrant, ready to break new barriers.

Among Ghatak's successors, only Kumar Shahani (Tarang) and Nirad Mohapatra (Maya Miriga) could display the courage to develop a style to the level of an epic. The other Mohapatra - Manmohan (Klanta Aparanha) - continues to languish in faithful emulation of his master. Ketan Mehta tried to achieve the epic form in *Holi* and now *Kartoos*, only that the influence of French impressionists is much stronger. Prakash Jha (Daamul) with swinging camera movements and long takes could successfully suppress his deficiencies. Even a purist like Mani Kaul has reached a dead end after *Mati Manas* and is now contemplating to seek Amitabh Bachchan's service.

Bangladesh. In *Nagarik*, *Subarnarekha*, *Meghe Dhaka Tara*, *Teetash Ekti Nadir Naam* and *Jukti-Takko-Goppo* these sentiments were greatly amplified.

At another level, Ghatak proved more a spiritualist than the adventurous formalist he is made out to be. He clearly believed in rigid Buddhist way of life-at least in the manner he perceived his world from the *tatami* position. Translated into cinema, Ghatak, thereby, suppressed violence and tension from his frames. The Brechtian alienation achieved thus, was more out of convenience, rather than of wilful design. None of the later film-makers could share his passion or innovative

genius in handling the medium

## Ray's 'Cinematic' Cinema



In comparison, Ray presented a marked contrast to Ghatak both in style and content. Significantly, Ray did not protest or express his anguish as fiercely as his colleague did, but had instead settled onto literary themes based on the works of well-known writers like Bibhuti Bhushan Bandopadhyay, Premchand and Rabindranath Tagore. His Brahmo Samaj grounding and tutelage in Tagore's Santiniketan held him instead and right from *Pather Panchali* (1955) to his latest *Sakha Prosakha* he worked with a new Indian aesthetic-the "literary" cinema-and in the process developed the narrative form to perfection. He made children's films *Goopi Gyné Bagha Byne*, *Hirak Rajar Deshe* etc. There was scarcely a subject or area in cinema that Ray did not handle or contribute.

His Appu trilogy, *Charulata*, *Mahanagar...* onwards to *Pratidwandi* and *Ashni Sanket* all hinged onto their dilemmas and agonies which perpetuated the class structures in modern India. In that sense, Ray was the only political film-maker the country produced. Only rarely did he stray into non-political areas (as in *Nayak* and *Chiriyakhana*) where he was evidently not too comfortable.

Where Ghatak failed in his obsession for East Bengal, Ray scored by his world outlook. By a happy coincidence, the year *Pather Panchali* was made, India received a major international exposure at the Bandung Conference. Ray became the first cultural ambassador of free India with his debut-making film winning the Best Human Document Award at Cannes, the Golden Carabao at Manila, the Selznick Golden Laurel at Berlin, the Grand Prix at Rome, San Francisco, Vancouver, Stafford, Tokyo, Denmark, New York, besides the President's Gold and Silver Medals at the New Delhi Film Festival in 1955.





### Indigenous Productions

The same year, V. Shantaram sprang a surprise with *Jhanak Jhanak Payal Baaje* - the first colour film made wholly by an Indian crew. The dazzling musical with its gorgeous dance ensembles and captivating visuals became a show window of Indian art and culture. This was followed by Mohan Segal's *Adhikaar*, Raj Kapoor's *shree 420*, Guru Dutt's *Mr. and Mrs.*, Bimal Roy's *Naukri*, Satyen Bose's *Bandish* and Devendra Goel's *Vachan*. Bimal Roy also produced a documentary (for Films Division) *Gautama the Buddha*, which won a top national award as well as a special mention at Cannes.

Meanwhile, Mrinal Sen emerged on the scene with *Raat Bhor* (1956). Progressing gradually from the dull mediocrity of *Punascha* (1961), the half-baked comedy of *Abasheshe* (1962) and a french-inspired *Akash Kusum* (1965) to the sudden brilliance of *Matira Manisha* (1967) sustained by *Ek Adhuri Kahani* (1971) and the masterpiece of *Oka Oorie Katha* (1977) immediately followed by the wild improvisations of *Parashuram* (1978), he finally straightened out in *Ek Din Prati Din* (1983) and now *Genesis* (1986). Through all this, his versatility and style can be compared to a

river tirelessly surging forward, bouncing up and down, skirting obstacles, falling from heights and taking serene bends. If Sen is seldom perfect, equally seldom does he fail to be lively.

In retrospect, Sen's *Bhuvan Shome* (1969) can well be regarded as the turning point of Indian cinema, when the "new wave" first hit the shores. The film made on an unsecured loan granted by the then film finance corporation, it came a trend setter, inspiring the likes of Shyam Benegal (*Ankur*), Pattabhirama Reddy (*Samskara*), Girish Karnad (*Kaadu*), B.V. Karanth (*Godhu*), Adoor Gopalakrishnan (*Swayamvaram*), M. Sathyu (*Garam Hawa*), Awatar Kaul (*27 Down*), G.V. Iyer (*Hamsa Geethe*), G. Aravind (*Uttarayanam*) and many others.

Of them Shyam Benegal has proved to be the most prolific with an impressive track record of 15th full-length features and 38 documentaries made in less than twelve years like his contemporaries, he began on an angry note questioning the fundamentals of feudal relationships (*Nisha Aur Auran*, *Susman*), occasionally borrowing from folk forms (*Charandas Chor*) even preaching (Manthan) and acting frivolous (*Mandi*)....only step back in time as a silent observer of history (*Junoon/Nehru Trikaal*). He reached his apogee in 1977 with *Bhumika* - a momentous biography on a marathi stage artiste which won lead actress Smita Patil her first National Award. In *Kalyan* (1979), however, he showed definite signs of fatigue.

### Stage Stars

One stimulating factor that has sustained Bengal is that he assiduously carved a niche for himself in the film market, without clamouring for patronage. While other film-makers complain about lack of distribution facilities, he created his own audience by capitalising on their weakest tribute-the inclination to identify with screen idols. In the process, he cultivated a whole range of stage talent like Om Puri, Naseeruddin Shah, Shabana Azmi, Sadhu Mehar, Anant Narayan, Kulbhushan Kharbanda, Smita Patil....all of whom

have established as stars themselves. They continue to be the Benegal torch-bearers at home and abroad.

Taking a cue from the multi-star blockbusters, some serious film-makers attempted to strike a compromise between purposeful film-making and mainstream cinema drawing upon star material from the latter they devised a different blend of fact and fantasy with social comedies, family dramas, musicals etc. made on a low budget, without compromising on their craft. The "middle-of-the-road" cinema emerged and found immediate votaries among regional film makers like Tapan Sinha (*Harmonium*), S.S. Rao (*Dikkatra Parvati*), Feroz Sarker (*Janam Teep*), K. Vishwanath (*Shankarabharanam*).... In fact, the dominance of matinee idols became so pervasive that stars from Tamil and Telugu cinema- M.G. Ramachandran and N.T. Rama Rao- were catapulted to become Chief Ministers later.

Hindi cinema had its "middle roaders" among Hrishikesh Mukherjee (*Anand*), Gulzaar (*Aandhi*), Basu Bhattacharya (*Anubhav*), Basu Chatterjee (*Choti Si Baat*), Rajinder Singh Bedi (*Chetna*), Manoj Kumar (*Upkaar*)... all banking heavily on star support. Sai Paranjpe came out with a moving document on the blind (*Spars*) with Naseeruddin Shah and Shabana Azmi in the lead, only to relapse into comedy with *Chashme Baddoor*. The equation between art and commerce could never be balanced with the stronghold of



distributors increasing over time.

### Ray's Bandwagon

As for Ray, the most ardent followers can be found in the South - especially in Karnataka from the makers of *Samskara*, *Ghantasradha*, *Grahana* and *Phaniyamma*. Rabindra Dharamraj's *Chakra* made a real effort to imitate Ray, though the impact was lost in a diffused presentation of slum-dwelling have-nots. Utpalendu Chakraborty was more faithful in *Moina Tadanta*, *Chokh* and *Debshishu* which showed the same flashes of anger and remorse like Gautam Ghosh (*Ma Bhoomi*, *Dakhal* and *Paar*) and Buddhadev Dasgupta (*Dooratwa*, *Grihajuddha*, and *Andhi Gali*). All these films have a certain innocence, a sense of awe in the presence of unknown humanity, that should flatter Ray. His stamp is strikingly visible.

Then there are those like Kundan Shah (*Jaane Bhi Do yaaron*) and Saeed Mirza (*Albert Pinto Ko Gussa Kyon Aata Hai?*) who refused to jump into any bandwagon and progressively evolved their own brand of wry humour - an awesome mix of Brechtian irony and black comedy. On a serious level, Mr. S. Sathyu's preoccupation with aesthetics led to the creation of *Garam Hawa* and *Sookha* - again, refreshingly honest and unpretentious. A glorious extension of the form appears in G.V. Iyer's *Adi Shankaracharya* - the first Indian Sanskrit film, incidentally, wholly financed by the NFDC. ■■



# DANCES OF INDIA

The contemporary Indian classical dance forms which are governed by elaborate technique and stylised system of both pure movement and "mime" have had their origins in the dances of the common people. This many-hued garden of dances as not only survived as at vestige of the past, but continues to have the inner vigour and vitality to influence and shape more sophisticated and self-conscious art forms. Thus, the folk and classical forms in India are not mutually exclusive: they are in continual dialogue. The classical forms occasionally provide the thematic content and gravity to folk forms: the folk forms provide the freshness, strength and buoyancy to modern forms.

Five dance styles are known as classical or art dance on account of a sophisticated degree of stylisation. The history of these forms can be traced backwards beyond two hundred, sometimes three hundred years. Each has a link with the literature, sculptural and musical traditions of the ancient and medieval period of India and the particular region. They all adhere to the principles enunciated by Bharata, namely of the division of dance into nritta (pure or abstract dance), nritya (dance with mime), of tandava and lasya of stylised presentation (natyadharmi). However, the technique of movement is distinctive, with a definite stylisation. Each follows a different set of rules for the articulation of movement.

## Bharatnatyam

Bharatnatyam developed in south India particularly in Tamilnadu in its present form about two hundred years ago. While its poses are reminiscent of sculpture of the 10th century onwards, the thematic and musical content was given to it by musicians of the Tanjore courts of the 18th-19th centuries. It is essentially a solo dance and as close affinities with the traditional dance-drama



form called *Bhagvata Mela* performed only by women. Nonetheless, its chiselled sophistication and stylisation make it a unique form of art-dance.

A body of technique is developed from the fundamental position of the out turned thighs, the flexed knees and out turned feet close together, all akin to a demipie foot contacts, of the whole foot, toe, heel. Toe-heel combinations are all utilised but with this basic stance. Exceptions are limited to two or three sequences with an erect posture. The torso is used as one unit, without being broken up into upper chest and lower waist. Straight lines, diagonals, triangles are basic motifs for executing movements and in floor choreography.

Compositions of Carnatic music provide the repertory. The recital begins with a number which is danced to abstract neumanics called *Allarippu*. It is followed by another number of pure dance performed to the musical composition *Jalisvaram*. Notes of the melodic line set to tala are interpreted through the dancer's movements. A number called *Shabdham* introduces mime for the first time. *Vamam* comes next. This is easily the most difficult, intricate and challenging number. The dancer follows closely the streamlining of the musical composition comprising three phases of the *pallavi*, *anupallavi* and *Charanam*. Each line is interpreted in mime prefixed and suffixed by

passages of pure dance performed to neumonics and the melodic line.

The third phase *charamam* works up to a crescendo where the melodic line is sung by the vocalist in its solfa passages first and then followed by the singing of the words of the poetic line on the same melodic line. The dancer interprets both. Its recital concludes with *Tillana*, also a pure dance number. In between there are lyrical compositions called *padams* to which mime (*nritya*) is performed.

### Kathakali

Kathakali from Kerala is classical dance drama. Unlike the others, it is *dramatic* rather than narrative in character. Different roles are taken by different characters; the dancers are all men or were so, till recently. It takes epic mythological themes as its content, and portrays them through an elaborate dramatic spectacle which is characterized by an other-worldly quality, a supematural grandeur, a stylised large-size costume to give the impression of enlarging human proportions, and a mask like make up on the face which is governed by a complex symbolism of colour, line and design. Character types, such as heroes, anti-heroes, villains, demons, sages, kings, all have a prescribed make-up and costume to give the impression of co-relating basic green with good, red with valour and ferocity, black with evil, primitiveness; white with purity, and so on.

In technique Kathakali follows the basic motif on a rectangular position reminiscent of a full grandpila with the important difference that the weight of the body rests on the outer soles of the feet, and not on the flat feet. The floor patterns also follow the rectangular motif. The pure dance sequences comprise units called the *Kala samas*, akin to the *adavu* of Bharatnatyam, the *arasa* of Odissi, the *tukra* of Kathak, the *chali* and *parenga* of Manipuri. In mime (*abhinaya*), Kathakali depends more than any other dance style on the elaborate language of hand gestures which has been developed to the highest degree of finesse and subtlety.

The musical instruments, used in

Kathakali are *Chenda*, *Maddalam*, *Chengila*, *Edattalam* and *Sankha*. The *Chenda* is made from a hollow piece of wooden cylinder, the two open ends, of which are covered tightly with leather. *Maddalam* is a drum resembling *Mridangam* and *Chengila* is a bronze gong. This is accompanied by *Ellattalam*, a pair of cymbals. Background music is provided by two singers who stand at the back of the actors and play the instruments.

In the traditional style the performances are conducted in the open spacious compounds of temples. No special stage is erected. But nowadays a slightly raised platform is made and lighting is provided by means of a big lamp. Nevertheless, in fighting scenes actors run among the audience too. The play begins at about 8 p.m. and finishes by 4 a.m. Before starting the play, an announcement is made at dusk and this is called *Kelikoitu*. While Kathakali is the most developed and sophisticated of the dance drama forms in India, there are many others which follow the same principles with varying techniques. The *Yakshagana* of Mysore is a close second the *Bhamakalapam* is a distant cousin. There are many other forms too.

### Mohiniattam



the other, the delicate expressions of the one with the stylised eye movements of the other, it coordinates the instinct with charm subtle allure and seductive appeal. In the rendering of the style there is enchantment, grace, delicacy and passion. The technical structure of Mohiniattam is fairly similar to that of Bharatnatyam, but its gesture language is a fusion of elements

from both Bharatnatyam and Kathakali. And again, like Bharatnatyam, Mohiniattam too has items of *nritta*, pure dance, as well as *nritya*, expressional dance.

Mohiniattam is mainly a *lasya* dance performed strictly according to the rule laid down in the *Natya Sashtra*. The dance presents striking bodily poses and attitudes and exquisitely graceful foot work. In its gesture and expression of the eve, Mohiniattam is indebted to Kathakali. If in Bharatnatyam the predominant moods are *santham* and *veerum*, in Mohiniattam, it is *sringaram*.

### Kathak

Kathak, from north India, is an urban sophisticated style full of virtuosity and intricate craftsmanship. Commonly identified with the court traditions of the later Nawabs of northern India, it is really an amalgam of several folk traditions, the traditional dance-drama forms prevalent in the temples of Mathura and Brindavan known as the *Krishna* and *Radha Leelas*, and the sophistication of the court tradition. Its origins are old, its present form new, attributed to the genius of Nawab Wajid Ali Shah and the hereditary musician dancer, Pandit Thakur Prasadji. The contemporary

repertoire was evolved by a few families of traditional dancers; during the last hundred years

In technique, Kathak is two-dimensional ways following a vertical line, with no breaks; deflecting the footwork is the most important of the dancers, training, where she or he is taught innumerable rhythmic patterns with varying phasis so that the 100 odd ankle bells can produce a fantastic range of sound and rhythm. Straight walks, gliding movements, fast pirouettes, changing tempos and meterical patterns constitute the beauty and dexterity of the style. In other dance styles, the performer begins with invocation, either to a god or the chief patron of the audience. The invocation and entry (*amar salaam*) is followed by an exposition of slow delicate movements of the eyebrows, eyes, lips, neck and shoulders. This is followed by the presentation of phrases of rhythmic patterns known as the *tukras* and *toras*. Time cycles can be repeated adding complexity to the presentation. Couvettes arranged in groups of three, six, twelve, etc. normally mark the finale.

The pure dance sections (*nritta*) are followed by short interpretative pieces performed to a repetative melodic line. The mime (*abhinaya*) is performed to lyrics of Hindi and Brajhasa known to villagers and towns people alike. The dancer has freedom to improvise, in the pure dance sections: it is common to have a head-to-head competition with the percussionists: in the mime (*abhinaya*) portions, again the range of improvisation on the poetic line is the test of a good dancer.

### Manipuri

Manipuri is a *lyrical dance* form from the eastern region of India. Although many forms of ritual, magical, community and religious dances were known to Manipur before the advent of the Vaishnava faith in the 18th century, the dances known as the *Rasa* dances evolved only as a result of the interaction of the Vaishnava faith in the 18th century, and the several highly developed forms of ritual and religious dances which were prevalent in the area.

The origin of the *Rasa* dances is attributed to the vision of a king. Be that as it may, five different types of ballets, with a well-conceived structuring of *Corps de ballet*, *solo pas de deux* revolving round the theme of Radha-Krishna and the Gopis (milkmaids) comprise the large part of the classical repertoire. The second group of the classical dances is known as the *Sankirtanas*, performed generally by men with typical Manipur drums called *pung* or *cymbals* (*Kartals*) or clapping. At large variety of intricate rhythmic patterns are played on the drum and the cymbals. The *Vata Sankirtana* often precedes the *Rasa*.

In Technique, Manipuri is quite different from Bharatnatyam and Odissi. Feet are in front, not out turned, knees are relaxed, slightly bent forward but not flexed sideways; there is no out-turned position of the thighs. The torso is held in relaxation with the upper chest and waist moving in opposition. The whole body is turned into an imaginary figure of eight or akin to the English letter "S". The arms move as a unit, with no sharp angles through elbow bendings and erect straight lines of Bharatnatyam. The fingers of the hands also move in circles, semi-circles, curves, folding, unfolding gradually. The primary unit of movement is known as the *Chali* or the *pareng* on which the dance is built. The *Sankirtanas* follow a more vigorous masculine technique with jumps and elevations but no leg extensions.

Like Bharatnatyam and Odissi, Manipuri can also be broken into pure dance pattern sections and mime. The latter is also lyrical, subtle and, unlike Bharatnatyam and Odissi, there is no dramatic extrovert expression.

### Odissi

Odissi is a close parallel of Bharatnatyam. It developed from the musical play (*Sangita, Nagaka*) and the dances of gymnasiums known as the *kharas*. Sculptural evidence relating to the dance goes to the second century B.C. From the 12th century onwards there are inscriptions/manuscripts and other records which speak of the prevalence of dance styles of ritual dances of temples and

entertainments of the village squares. A 12th century poetic work called *Gita Govinda* has dominated the poetic and musical content of the dance styles. The dance was performed by women called *maharis* in the temple of Jagannath, later, merged as women, called *gotipuras*, performed these dances in the courtyard of the temple.

The present Odissi as a solo form evolved out of all the above. It has been revived during the last two decades. Its technique is built round a basic motif in which the human body takes the thrice deflected (*tribhanga*) position of Indian sculpture. The lower limbs are in a demi-plie, the upper torso is broken into two units of the lower waist and upper chest, which move in counter opposition.

The repertoire comprises numbers which are built on pure dance (*nritta*) design recalling sculptural poses of the Orissan temples: the poses are strung together within several metrical cycles (*talas*) and dances performed to poetry ranging from the invocations to Ganesa to the verses of the *Gita Govinda*.

### Folk Dances of India

For untold centuries India, with its vast variety of ethnic groups, races and cultural groups, has been a veritable treasure house of dance and music. The contemporary Indian classical dance forms which are governed by elaborate technique and stylised systems of both pure movement and "mime" have had their origins in the dances of the common people. This many-hued garden of dances has not only survived as a vestige of the past, but continues to have the inner vigour and vitality of influence and shape more sophisticated and self-conscious art forms. Thus, the folk and classical forms in India are not mutually exclusive: they occasionally provide the thematic content and gravity to Folk Forms: the folk forms provide the freshness, strength and buoyancy to modern forms.

There is not a region, a valley or mountain, a sea-coast or a plain, which does not have its characteristic folk dances and songs. From Kashmir in the north to Kanyakumari in the south, from

Saurashtra and Maharashtra in the west to Manipur and Assam in the east, each region, district and community has its particular folk music and dance. Roughly speaking, depending on the level of social and cultural development, these dances can be grouped under the three categories of tribal, village folk community and traditional ritual dances.

The themes of the dances are simple but not naive; sometimes they revolve around the daily tasks on the field of sowing and reaping the harvest, of pounding rice, of weaving textiles, of catching birds and insects; at others they celebrate victory in war or success in a hunt and at yet others it is the abstract movement of an actual ritual performed to propitiate the gods, or dances which may have a magical import. Finally there are the community dances for all seasons and festivals when men and women dance for sheer joy to celebrate spring, the rains, autumn and winter. Men and women and children all dance; there is no cleavage between performers and audience; everyone is a participator, a creator. There is no entertainer, only entertainment.

Nature has silently and unobtrusively fashioned the movements of the dance, as it has the life of the people who live in continual communion with it. The Himalayan mountainous ranges extend over a large area in India, all the dances of the mountains have something in common, whether they come from Kashmir, Himachal Pradesh or Uttar Pradesh or Darjeeling. The bend of the knees, the long swaying movements, the intertwined arms recreate the undulating ranges of the Himalayas. The agitated movements and abrupt changes of posture in the otherwise flowing lyrical movements of the eastern region, particularly Assam and Manipur, speak of sudden storm and uprooting of trees. The tense and watchful and carefully choreographed attitudes in the dancing of the Nagas of NEFA (North East Frontier Agency) Meghalaya, Manipur and Assam denote the unknown perils of the jungle. The dances of the fishermen of Saurashtra suggest

the roaring waves of the sea while the folk dances of the plain present a different picture of colour and rhythm by contrast.

Folk dances of particular regions of India have both a regional autonomy and features which are common to other regions of India while the ecology environment and agricultural functions give a distinctiveness; legend, myth, literature unite them to other parts. The dances have survived through many centuries of Indian history and have provided a continuity to the Indian tradition which is not stagnant, as it is constantly adapting itself to new conditions and assimilating influences. Pliability and flexibility is of essence; scope for self-expression, improvisation, is the secret of survival.

As has been mentioned above, all the dances in their staggering multiplicity can be divided into the dances of the tribal rural communities of India. A tribal belt runs through all parts of India. All these varied groups comprising many racial and ethnic strands ranging from the Austro to the Mongoloid, from the Aryans to the Dravidians, are people who represent pre-agricultural state of civilisation. While most of them, have taken to agriculture and tool cultivation today, their dances and music continue to recall the functions of hunting, fishing, food gathering and animal husbandry. At whole or in part amongst these several hundred tribes is known by the generic term Nagas. They constitute the Zeliangs, the Maos, the Tankhuts, the AOs, the Mizos, the Dagles, the Garos and many others. Their dances revolve around the 'hunt' and many ceremonies and rituals.

Some of these are closely related to similar dances in Thailand, Burma, Philippines and other parts of Asia. One amongst these is of special relevance as a Pan-Asian dance. In India, it is performed largely, by the Mizos and is called bamboo dance.

### Dances of the Plains

In deep contrast to these dances of

women dancing in straight erect postures with drumming or vocal music as accompaniment, are the dances of the tribes of the plains marshlands. The richest amongst these are dances of the Ho's and Oraons of Bihar, the Jais of Bastar in Madhya Pradesh and the Jhals of Bengal. Kaksar is a typical festival performed by the Abhujmarias before reaping a harvest. First the deity is worshipped and then the dance is performed. The men appear attired with a belt of bells around their waists, and the women, in short brief saris, but richly bejewelled. The dance provides the occasion for single life partners. The marriage or marriages which so emerge are enthusiastically celebrated. The rhythms are complex, the choreographical patterns varied. The bell-belts of the men dancers and the jewels of the women add to the variety of the formal patterns of the dance. The instruments used are *dhol* (cylindrical drum), *timiki* (bowl-shaped percussion instruments) and *bansuri* (a kind of flute). Close to the lush marshland of Madhya Pradesh and yet very different, are the dances of Bihar. Amongst these the Ho's and Oraons are rightly famous for their vigour and vitality.

Migrations from one part of India to another are common in India. One such migration seems to have taken place hundreds of years ago of a group of people from north India to Andhra Pradesh in the south. The Mathuris claim their descent from the line of the northern Raja Bhavisinh Chauhan. Today they are settled mostly in the Adilabad district of the Deccan. They celebrate festival, through dances, chiefly *Holi* (the spring festival) and festivals revolving around the worship of God Krishna. The Mathuri dance two favourite numbers, the *Lengi Ka Natch* and *Lingi*. The musical instruments mainly consist of drums and *ghanjis* (the brass plates) which create a clangorous sound.

### Malayan Dances

From the northern Himalayas region come

many dances which belong to the village communities. Himachal and northern Uttar Pradesh are the home of many interesting and colourful dances. Two popular favourites come from Jaunsar Bawar in Uttar Pradesh. The festival of lights called *Diwali* is celebrated throughout India at the end of autumn. On a dark night lights are lit and presents are exchanged. This is also the time for the homecoming of married women. The dance begins with semi-circular formations : it breaks into single files of men and women. The song which accompanies is usually set as questions and answers. With gliding movements, graceful knee dips, the dance progresses, until one or two amongst the women proceed to the centre to rotate dishes on their fingers or sometimes pitchers full of water turned upside down over their heads. So perfect is the balance that not a drop of water trickles out of the pitchers. The musical instruments resemble those used by the dancers of Himachal Pradesh, comprising *narshingha* (a large trumpet), brass bells, barrel shaped percussion instruments and bowl-shaped drums.

### 'Bhangra' of Punjab

In the Punjab, a virile agricultural dance called the *Bhangra* is popular and is closely linked with the ritual importance which is given to wheat. After the wheat crop is sown, the young men gather together in an open field under the light of the full moon in answer to the beat of the drum. The dancers begin to move in a circle, so that as many new comers who wish to join can do so without breaking its continuity. The circle goes on widening until a large open circle is formed with the drummer as the leader. The leader with a large drum hung in front, stands in the centre and plays the *dholak* (drum) with sticks. The dancers first begin with a slow rhythm, with an abrupt jerky movement of the shoulders and a hop-step : this is followed by many vigorous movements of the whole body and the raising of both hands to the shoulder or above the head level. After the circle has been well established and the tempo of the



dance has accelerated, the two main dancers dance within the ring in a kind of duct. This is followed by pairs emerging from different sections of the circle, dancing in the central area and returning to their respective places in the circle. The pair of dancers can execute many variations, ranging from graceful to virile movements, circles, pirouettes, jump and extensions of legs, jumps and leaps. A skilled Bhangra dancer may even perform some highly complex acrobatic movement with the torso touching the floor, through a spinal back bend or another dancer stand on his shoulders, while he dances on his knees. Since there are no rigorous rules of the Bhangra, it leaves an overwhelming impression of fresh spontaneous vigour and vitality. Its movements are nevertheless characteristic of the masculinity of the Punjabi and cannot be mistaken for anything else.

### 'Rouf' of Kashmir

Further north in Kashmir, the occasions of the dance are many. Men and women lie in the lap of snow-clad mountains throughout winter, spring brings new life and a reawakening. *Rouf* is a typical dance of the women at spring time with across interlocked separate rows made, and each singing a different line of the song, almost as question and answer. The steps are light moving backwards and forwards with slight swings and sways. The composition is charming for its simplicity and spontaneity. These are only samples of the vast store house of tribal and folk-dances of the Indian subcontinent. From these have emerged the varied classical tradition of Indian music and dance.

### Modern Dances

Understandably, the confrontation of the comparatively dramatic styles such as Manipuri, Kathakali and folk forms with western influences produced a new form of dance in the 20th century which has been loosely termed as Modern dance. Uday Shankar, its founder, had met and danced with Anna Pavlova when he was himself unacquainted with the Indian tradition. Later he returned to India to create, to recreate, revive and to break

away from the set norms of the tradition. While he borrowed freely and successfully from all styles what he created was his own, unrestricted to any traditional mannerism, unbound to the meteric cycle and the word - mime relationship. Contemporary themes, labour and machinery, the daily rhythm of life were chosen in addition to myth and legend. Unlike traditional schools dance was composed first, music accompanied. It did not govern. Gradually a whole school grew up as the Uday Shankar School of Dance.

Most modern choreographers belong to this school: the most talented amongst these was Shanti Bardhan (died 1952), the creator of two remarkable ballets called *Ramayana* and *Panchatantra*. In each, while the theme was old the conception and treatment was totally new. In one the format is that of a puppet play presented by humans in the other typical movements of birds and animals. Astad Deboo has incorporated both western and Indian traditions. His choreographic pieces are set to the music of various genres. He employs various stage props.

Chandrasekhar is India's most talented iconoclast, original choreographer and radical thinker. She welds martial arts movement into a dance that even as it is focussed on the body seem to transcend it and unflock the gateway to an inner space of great beauty. Chandrasekhar has used Bharat Natyam dancers back to back, that too male and a female, in movements symbolic of Yoni and the Lingum. The notable productions are *Navagraha*, *Angika*, *Lilavati*, *Shree*, *Prana* and *Bhinne Pravaha*.

All this shows, these developments do not leave the traditional dancers unaffected. Without departing from the norms of the particular stylisation, dance-dramas (sometimes called ballets in India) have been created in practically all styles including Bharatnatyam, Manipuri, Kathak, Kuchipudi and Odissi. The themes continue to be rooted in the tradition for the most part. But there are refreshing departures and innovations. ■■

# LANGUAGES AND THEIR DISTRIBUTION

India's unity lies in her diversity and this is further tantiated by the high degree of diversity, they , in their languages and dialects. They speak us languages and dialects. This evolved igh the ages by the immigration of heteroge-is ethnic groups from the neighbouring re-s into this land. Their ethnic diversity got fur-diversified in the form of speech of our people. 1961 census had listed 1652 languages as er tongues spoken in India. This figure was ed at, taking into account even dialects spo-only by five persons. The 1971 census gave ore realistic figure of 700, having taken into unt the dialects spoken by 100 people and re. The Indian constitution has officially grised 18 languages after taking into consid-on their numerical, commercial, political and ural importance. The languages contained in 8th Schedule of the constitution, are as fol- : :

(1) Hindi (2) Sanskrit (3) Urdu (4) Bengali ssamese (6) Gujarati (7) Punjabi (8) Kannada Kashmiri (10) Malayalam (11) Marathi (12) a (13) Tamil (14) Telugu (15) Sindhi (16) ali (17) Konkani (18) Manipuri

## Classification of Indian languages

The languages spoken by the people of In-belong to the following four language families:

- 1) Indo-European Family-(Aryan)
- 2) Dravidian Family-(Dravida)
- 3) Austric Family-(Nishada)
- 4) Sino-Tibetan Family-(Kirata)

## Indo-European Family

A substantive population of India speaks one he other forms of the Aryan languages. It is biggest of the language groups in India, ac-nting for about 73 per cent of the entire Indian ulation. Aryan languages are generally divided

into two main branches: Dardic and Indo-Aryan.

The Dardic group includes Dardi, Shina, Kohistani and Kashmiri. The Indo-Aryan branch is divided into the North-Western, Southern, East-em, East-Central, Central and Northern groups. The North-Western groups include Lhanda, Kachchi, and Sindhi. The southern group comprises Marathi and Konkani. The Eastern group includes Oriya, Bihari, Bengali and Assamese. Among the dialects of Bihari may be included Maithili, Bhojpuri and Magadhi. The East-Central group consists of three main sub-groups : (a) Avadhi (b) Baghaili and (c) Chattisgarhi. The central group includes Hindi, Punjabi, Rajasthani and Gujarati. Hindi or Hindustani has produced two great literatures, Urdu and (High) Hindi. Both have the same grammar and the same basic vocabu-lary though they differ in script and higher vo-cabulary. Hindi uses the Nagari script while Urdu uses the Perso-Arabic script. Moreover, Hindi has a preference for purely Indian words, while Urdu has numerous Arabic and Persian borrowings. The Rajasthani itself consists of several varieties of speeches. The principal among them being Marwari, Mewari and Malawi. The speeches that fall in the Northern group consists of one or other variety of Pahari speeches. They include Nepali, Central Pahari and Western Pahari. Besides these languages, Sanskrit, the classical language of In-dia, represents the highest achievement of the Indo-Aryan languages. Although hardly spoken now-a-days, it has been listed as a nationally ac-cepted language in the 8th Schedule of the con-stitution. Languages of the Indo-Aryan family are concentrated in the plains of India. Its domain, however, extends over the peninsular plateau also, reaching as far south as the Konkan coast.

The central part of this region has Hindi as the principal language. It is spoken in Bihar, UP

Pradesh, Madhya Pradesh, Himachal Pradesh, Rajasthan, Haryana and the Union Territory of Delhi. Urdu is closely akin to Hindi and is widely distributed in this belt. The speeches belonging to the north western groups, such as Kachhi and Sindhi are mainly concentrated in Western India. Sindhi is spoken by some 16 million people, of whom 5 1/2 million live in Sind (Pakistan); and the rest mostly in India. Sindhi uses the Perso-Arabic script in Pakistan. Speakers in India use mainly the Devanagari script. Marathi is the most important language of the southern group of the Indo-Aryan family. It is the official language of Maharashtra. The languages of the eastern group, such as Oriya, Bengali and Assamese are spoken in the Eastern India. The languages of the central group are confined to Punjab, Rajasthan and Gujarat. The Himalayan and the sub-Himalayan areas are inhabited by the speakers of the various forms of Pahari and Nepali which belong to the northern group of the Indo-Aryan languages.

## 2. Dravidian Languages

The Dravidian language came into India centuries before the Indo-Aryan. It is spoken by about 25 per cent of the Indian population. It splits into three branches in the Indian subcontinent- (i) South-Dravidian, (ii) Central-Dravidian, (iii) North-Dravidian.

(i) The South-Dravidian group includes the major languages such as Tamil, Kannada, Malayalam as well as the minor languages or dialects such as Tulu, Kurgi, Badaga, Toda, Kota, Kodagu and Yerukala.

(ii) The Central-Dravidian group is composed of Telugu and a number of dialects spoken in central India—Kui, Khond, Holani, Konda, Gondi, Naiki, Parji, Koya and others.

(iii) The North-Dravidian branch comprises Brahui spoken in Baluchistan and Kurukh (Oran) and Malto spoken in Bengal and Orissa.

Languages of the Dravidian family are concentrated in the Plateau region and the adjoining coastal plains. Telugu is spoken in Andhra

Pradesh; Tamil in Tamil Nadu; Kannada in Karnataka and Malayalam in Kerala. TI speeches of the Dravidian family are also spoken by a large number of tribal groups living in the eastern and the north-eastern parts of the peninsular plateau. These groups include the Gonds in Madhya Pradesh and Central India and the Oraon of Chota Nagpur Plateau.

## 3. Austric Family

The Austric languages of India belong to the Austro Asiatic sub-family of languages. Nearly 1.38% of the entire Indian population speak it. This sub-family is further divided into two main branches : (a) Munda and (b) Mon Khmer. The Mon-Khmer branch consists of the two groups—Khasi and Nicobari. The Munda branch, the west of the Austric, consists of fourteen tribal language groups. The largest group of speakers of the Austro-Asiatic sub-family of languages is of Santhali speakers, who alone account for more than the half of the total speakers.

The speeches of the Austric family are spoken by the tribal groups in the Khasi and Jaintia hills of Meghalaya and the Nicobar Islands in the Bay of Bengal, the predominantly tribal districts of Santhal Parganas, Mayurbhanj, Ranchi, Nimapur, Betul and Baudh Khondmahals. Of the two speeches of Mon-Khmer, Khasi is concentrated in the Nicobar Island. The Mundari speakers are concentrated in the other districts mentioned above.

## 4. Sino-Tibetan Family

The speakers of the Sino-Tibetan languages fall into three main branches :

(i) Tibeto-Himalayan, (ii) North-Assam-Burmese

The Tibeto-Himalayan branch comprises the Bhutia group and Himalayan group. The Bhutia group includes Tibetan, Balti, Ladakhi, Lepcha, Sherpa and Sikkim Bhutia. The Himalayan group consists of Chamba, Lahauli, Kanauri and Ladakhi. Ladakhi has largest number of speakers followed by Sikkim Bhutia and the Tibetan in

Himalayan group, the speakers of Kanauri have the highest numerical strength.

The North-Assam or Arunachal branch includes Aka, Dafla, Abor, Mimi, Mishmi and Mishng. In this group, the Mimi's have the largest number of speakers. The Assam-Burmese branch of the Sino-Tibetan family is divided into the following groups: (a) Bodo or Boro, (b) Naga, (c) Kachin, (d) Kukichin, (e) Burma group.

Each of these groups consists of several speeches. Among them the Naga group displays the highest. The speeches falling in this category include Manipuri, Garo, Boro, Tripuri, Mikir and Lushai (Mizo). Among them, Manipuri has the highest number of speakers.

The languages and the dialects belonging to the Sino-Tibetan family are spoken by the tribal groups of north-east and of the Himalayan and sub-Himalayan regions of the North and the North-West. The speeches of the Tibeto-Himalayan branch are in Ladakh and parts of Himachal Pradesh and Sikkim. The Assam-Burmese branch is concentrated in the states and Union Territories of North-East India along the Indo-Burmese border. Among these, Naga dialects are spoken in Nagaland, Lushai is concentrated in Mizo hills,

Garo in Garo hills and Meitei in Manipur.

The principal languages of India constitute the following linguistic regions: 1. Hindi-Urdu, 2. Bengali, 3. Assamese, 4. Oriya, 5. Punjabi, 6. Kashmiri, 7. Gujarati, 8. Tamil, 9. Telugu, 10. Marathi, 11. Kannada, 12. Malayalam.

However, the tribal languages do not fit into this scheme of regions as the tribal groups are concentrated in enclaves in central, eastern and north-eastern parts of the country. The regional mosaic of these languages is highly complex and does not lend itself to a simplified scheme of regions.

Article 343 of the constitution provides that for a period of 15 years from the commencement of the constitution, the English language shall continue to be used for all official purposes of the Union. It was expected that after the expiry of the stipulated period i.e. 1965, Hindi would replace English but till date no definite date has been fixed for its elimination and replacement by Hindi. As matters stand, the languages listed in the constitution remain the official languages of the respective states, while Hindi and English continue to be used for inter-State correspondence and for all India use generally. ■■

# INDIAN LITERATURE

Like the Indian languages, the history of Indian literature may conveniently be divided into two main stages or phases, the old and the modern. The old is also capable of being sub-divided into ancient and medieval, and the lower limit of this old period has been put down roughly at 1000 A.D. This is the period when the Indian people experienced some of the greatest transformations in its political and cultural set up. It was about this time the Northern Indian Aryan languages as they are current at the present day took definite forms, evolving out of the earlier Apabhramsa and Prakrits, and these in their turn represent the second phase

of the Aryan speech in India, the earlier phase indicated by Vedic and Classical Sanskrit. Round about 1000 A.D., in the different parts of North India and the Deccan, the Modern Indo-Aryan languages took shape—languages like Bengali, Assamese and Oriya, Maithili, Magahi and Bhojpuri, Kosali (Eastern Hindi), Brajbhasha and other connected dialects belonging to the 'Western Hindi' speech; the Pahari or Himalayan dialects; and dialects of Rajasthan and Malwa with Gujarati, Marathi and Konkani, the speeches of Eastern Punjab, Western Punjab and Sindh; and Kashmiri—all these first came into being about this

time. Although the language changed its character during the a new-phase, it differed in its grammatical development from the earlier one, there was no break in the tradition of literary composition which was current in India before 1000 B.C. The scholarly and scientific literature of India continued to be written in Sanskrit even after the development of the Prakrit or Middle Indo-Aryan dialects and the Bhasa or Modern Indo-Aryan speeches. The older literary tradition was partly religious and partly secular, such as we find in both Sanskrit and the Prakrits. The religious literature consisted of philosophical disquisitions and narrative poems describing the legends and stories of the ancient heroes as preserved in the great epics and the Puranas, and in the case of the Jainas, in the stories of religious edification on the lives of the Jaina saints. The atmosphere of Brahminism, Buddhism and Jainism was carried over from Middle Indo-Aryan to New Indo-Aryan. On the secular side, the literature consisted of little lyrics of love and life, and the habit of composing long narrative poems on romantic legends, which was prevalent in Sanskrit also, received a new form in the New Indo-Aryan languages. Modern Indian literature thus started with inheritances from Prakrit and its later phase the Apabhramsa, and from Sanskrit, in Northern India, and in South India, in the case of Dravidian languages, there was a profound influence of Sanskrit all through. Although certain types of literature appeared to have developed independently in the various Dravidian languages, particularly Tamil, the Sanskrit Influences became predominant.

Apart from a slender stream of secular literature, the inherited religious literature of the Modern Indian languages presents a common factor for all the Indian languages of the present day. The great Sanskrit epic, the *Mahabharata* and the *Ramayana*, the story of Krishna as in the *Bhagavata Purana* and other Puranic stories, were like the Bible and the Golden legends of the Saints in Medieval Christian Europe, supplying the basic material for literatures in Modern Indian languages. This forms the great link for the whole of India,

and its importance as forming the background of modern Indian thought and literature can never be estimated. About early Modern Indian Literature we may say that on the side of story-telling, romance and narrative poetry—there were, to start with, two distinct matters or cycles in almost every language :

(1) The matter or cycle of ancient India as preserved primarily in Sanskrit, and

(2) The matter or cycle of the province or linguistic area concerned what may be called the matter of medieval India which sometimes was found treated not in one language but in many and which were thus interprovincial or even Pan-Indian. Some of the most distinctive or characteristic literary creations in the different Modern Indian Literatures belong to this matter of medieval India. Then, from the 16th century onwards, and particularly from the 17th century, some of the North Indian languages like Hindustani or Hindi, Bengali, Punjabi and Sindhi, under Muhammadan inspiration developed a new matter or cycle, viz

(3) The matter or cycle of the Islamic world—Persia and Arabia. In the Urdu form of the Hindi speech and in the earlier Dakhni, this matter of the Islamic world became most prominent naturally, and in Bengal, from 17th century onwards, we have a respectable literature of type treating Muslim religious, mythological, legendary, and romantic themes.

The movement to translate or adapt in the language of the people the *Ramayana* and the *Mahabharata*, the puranas and other texts of brahminical Hinduism, was accompanied also by a resuscitation or renaissance of Sanskrit studies which was specially noticeable from the 15th century and was operative in full force in the 16th and 17th century. Akbar consciously fell in line with this movement and he made Persian-knowing scholars in his court adapt the *Mahabharata* and a few other great Sanskrit works into Persian, to bring it all before his Muslim nobility of Turkish and Iranian origin and to propagate its study among Muslim scholars whether in India or outside India. Emperor Jahangir patronised Hindu

strologers and Shah Jahan supported Sanskrit scholars. Shah Jahan's son Dara Shikoh is well known for his Hindu sympathies and for his study of Sanskrit philosophy he caused Upanishads to be translated into Persian.

The matter of medieval India in Modern Indian literature consists of different cycles of romantic or heroic stories which had their origin from the time of the rise of the New Indo-Aryan languages and later. Thus in Bengal we have the cycle of stories related to the hero Lau Sen and his adventures (as in the *Dharma-Mangala* romances), to the young merchant prince Akshminthara and his devoted wife Bihula and the snake goddess Manasa (as in the *Manasa Mangala* and *Padma-Purana* Poems) and to the merchant Dhanapati, his wives Khullna and Mahana and his son Srimanta as well as to the stories of the huntsman Kalaketu and his wife Kullara (in the *Chandi-Mangala* poems); in Orissa, we have stories about the kings of Orissa, particularly the highly romantic story of King Urukshottamadeva and princess Padmavati; in the Awadhi or Kosali areas, we have a number of romantic tales which treated largely by the early Muslim writers of Awadhi and one such story, that of Padmini of Chitor, was treated in a novel way by the Sufi poet Malik Muhammad Jayasi in 1540; in Rajasthan and the North Indian Rajput world, we have a number of noble stories of Rajput romance and chivalry which were treated in poems in early Rajasthani and in Brajbhasha as well as in the Bundeli forms of Western Hindi (e.g. the romance of Allah and Udal). Punjab had also its romantic stories (e.g. those relating to Raja Raisal and Bhatihari); and the Maratha country has its ballads relating to the Maratha heroes from Shivaji onwards (17th to 19th centuries).

Certain literary genres were well-established in the North Indian languages. One is the *Barahmasiya* poems, poems describing in a series of pictures, so to say, for the 12 months of the year, the sufferings of lovers pining through separation of their joys in union. Another is the *Chautisa* or poems with initials of the lines consisting of the

34 consonants successively in the Indian alphabet, similarly describing the pangs of separation or praise of the Divinity.

Prose was very rarely cultivated in most of the Modern Indian languages in their early periods. Exceptions are Early Assamese which developed a prose style in its histories of Sino-Tibetan (Ahom) inspiration, the Buranji literature, from the 17th century; Brajbhasha which from the 17th century also developed a Vaisnava hagiographical and biographical literature; and early Gujarati, in which the jainas created a rich and varied narrative literature. In early Punjabi also we have a Sikh biographical literature in prose. Prose was used but it was confined to letters and to legal documents. Bengali prose started from the 18th century, and that too largely under Portuguese missionary auspices.

The real Renaissance in India came through the contact with English literature and European culture from the early part of the 19th century, and from this time we have a new orientation and a totally new development of modern Indian literatures. English literature itself and the literatures of ancient Greece and Rome, of Italy, France and Germany, and later on of Russia and Scandinavia (from 20th century) which were brought to the door of English-knowing Indians, revolutionised the attitude to literature and inaugurated the current or modern phase in Indian literature. This contact with the European mind first began in Bengal and by the middle of the 19th century, the emancipation or modernisation of Bengali literature had already begun. The essay, the drama, the novel and the short story were born; prose flourished and gradually an expressive and nervous Bengali prose style became established during the sixties of the last century. The European type of blank verse and verse forms like the Italian sonnet were introduced. Rabindranath Tagore, who won the Nobel Prize for Literature in 1913, became the symbol of this new spirit in Indian literature.

## Modern Literature

An overall picture of the present literary

situation in some of the major languages is discussed here.

Assamese has the same script as Bengali. There are several young, experimental, avant garde poets like Navakant Barua, Hem Barua, Mahendra Bora and others, as well as fiction-writers like Birendra Kumar Bhattacharya and Syed Abdul Malik. Social realism is substituted by regional documentation and psycho-analytical short stories. Bengali, the language of great master thinkers and poets, novelists and essayists like Raja Ram Mohan Roy, Vivekananda, Aurobindo, Rabindranath Tagore, Saratchandra Chatterji and so many others is considered to be the best of the East and the West and translations from all world languages are available in Bengali.

After the death of Rabindranath Tagore in 1941, there seemed to be a very big gap in the field of poetry which is still unfilled, though Jibananand Das, Buddhadev Bose, Sudhin Datta, Bishnu Dey and others did take up their responsibility. But in the field of fiction, three Banerjees did remarkable work. Bibhuti Bhushan Banerjee (author of *Pather Panchali*, the Satyajit Ray film),

Anik Banerji (author of *The Puppet's Tale*) and Parasankar Banerji. There are many important names in the field of short story, and anthologies in English like *Green and Gold* (edited by Humayun Kabir) and *Broken Bead* (edited by Lila Ray) are some specimens. Drama, in spite of Utpal Dutt and Shombhu Mitra, has not advanced much. The latest trend like the influence of the Beatniks is seen in 'Hungary Generation' poets like Malay Raichaudhari.

After 1904, Oriya came to its own and novelists like Fakir Mohun Senapati and K.C. Panigrahi discovered in their rural life excellent gems of extraordinary characters. Poets like Suchi Raut Ray, Mayadhar, Mansingh and others were trying their best to light the torch. Modernism in poetry has come to stay. Gopinath Mohanti and Raj Kishore Ray tried to break new ground in fiction.

Tamil literature has a rich past with Kemal and Shitappadhikaram as classics. Modernity

dawned during this century with V. Swaminath Iyer and Subramanya Bharati. Many powerful modernists like Janaki Ramanand D Jayakantan are replacing the popular novelists like Kalki and Akilan. Kambadasanand and Bharatdasan blazed new poetry. Aruna and Karunanidhi wrote authentic stories about the depressed classes. The other three languages are Telugu, Kannada, and Malayalam. Telugu is spoken by the largest number of people in India, next to Hindi. Poetry tended to be very angry with "Progressives" Sri Sri, then it mellowed with Dasharathi and C Nar Reddy. Then again 'The Naked Poets,' a rebellious group became active. In fiction, Vishwanath Satyanarayan and Narla Gopichand and Rachakonda there is a change in outlook.

Kannada has produced great poet Bendre, K.V. Puttappa and Shivarudrappa. came Gopal Krishna Adiga and Lankesh. The age of Masti and Gokak is replaced that of Shivram Karanth and Kulkarni. From Rangcharya to Girish Karnad there are playwrights who have like Ibsen and Shaw the stage for problem drama.

Malayalam is the most interesting language as it has Muslim, Christian and Hindu with equal proportion. Poets like Vallathol and Sankara kurup were replaced by a younger generation of significant non-conformist writers. Lion writers like Joseph Mundasseri, Muham Basheer, P Keshavadev, and T.S. Pillai made their mark. Most of the novels and stories are still lingering round social documentation, romantic realism and protest.

Literature in Marathi language is full of 'and stress', revolutionary tendencies being premost. The greatest follower of Gandhi, V Bhave, is from Maharashtra, so also are like Tilak and Savarkar who advocated Hinduism, and leftists and socialists like Dange, C Joshi. In literature too there is a constant development of modernism. Drama and fiction develop incorporating the latest Western genres like theatre of the absurd. Poetry followed Eliot and Pound.

ardhekar, and Rege had a revolutionary voice of social protest on nil Kusumagraj and anadikar.

Gujarati is the language of business people and its literature has been influenced to a great extent by Gandhi's non-violence. Much work has been done in research in folk-lore and folk-rama. It can boast of poets like Umashankar Joshi, "Sundaram" and Rajendra Shah, and novelists like Pannalal Patel, "Darshak", Chunnilal Mehta who have artistically articulated the conditions of rural Gujarat.

In Hindi there has been the largest number of translations from other Indian languages. There are poets of great stature like Nirala, Agyeya, Sukti-bodh who gave a modern idiom to the language; there are many other popular and pleasant lyricists like Mahadevi, Pant, Bachchan. Nationalist poetry had a special impact on Hindi and Maithilisharan Gupta, Makhnail Chaturvedi, Javeen, Dinkar and many others wrote poems which, though didactic, were so widely appreciated. In fiction from Premchand to Renu, there has been an emphasis on rural documentation, but metropolitan pressures are also very much in view, particularly in the short stories of Mohan Rakesh, Rajendra Yadav, Kamleshwar and Rajkamal Chaudhary.

Punjabi literature has great zest for life. Poets like Vir Singh, Mohan Singh, Amrita Pritam have made a remarkable contribution; so also the novels of Nanak Singh, Kanwal and the short stories of Duggal, Satindra Singh and Ajit Kaur. This language is the nearest solution to the meeting of tradition and modernity. Poets like Mehjur, Dinanath Nadim and Rahi and prose-writers like Akhtar Mohiuddin and Lone are the more well-known modern writers.

Indian writing in English has been acknowledged abroad with the novels of R.K. Narayan.



Mirza Galib

Raja Rao, Desani, Dr Mulk Raj Anand, Khushwant Singh, Bhabani Bhattacharya and Malgaonkar. Poets like Nissim Ezekiel, P. Lal, Ramanujan and Kamala Das are published in the English speaking countries and appreciated. Latest in the news are Shobha De, Vikram Seth, Amitabh Chaudhary and Anita Desai, and others.

## Indian writing in English

Indian socio-cultural atmosphere got its first acquaintance with the English language in the mid eighteenth century when it was introduced among the elites of the Indian society through our colonial rulers. Still, after more than two and a half centuries of usage the extent of which has been increasing with each passing decade, the use of this great language is primarily confined among a miniscule section of our diversified social milieu though it has been adopted by India as one of the languages and as a medium for education. Specially, in the realms of higher education, English as a medium has a certain edge over other regional languages and Hindi. It has also gained acceptance as the chief medium of communication in offices and professional discourses. Over the years, with the growing acceptance and popularity of the English language in India, the writing in English or using English as a medium of literary expression has also gained currency. Specially, in the nineties decade, Indian writing in English got a big boost with its popularity in the international market. Though Indian writing in English picked up only after independence, but its inception was way back in the early nineteenth century Raja Rammohan Ray was the first Indian to effectively express himself in black and white through English though he was initiated to the language when he was in his teens. Thereafter Vivekananda showed his perfect mastery over the language through his evocative prose, which made the west sit up and take notice of the greatness of Hinduism. Tagore also had written some poems in English. However, there is no denying the fact that Indian writings in English were extremely few and far between Jawaharlal Nehru and...



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After 1904, Onya came to its own and novelists like Fakir Mohun Senapati and K.C. Panigrahi discovered in their rural life excellent gems of extraordinary characters. Poets like Suchi Raut Ray, Mayadhar, Mansingh and others were trying their best to light the torch. Modernism in poetry has come to stay. Gopinath Mohanli and Raj Kishore Ray tried to break new ground in fiction.

Tamil literature has a rich past with Kernal and Shilappadhikaram as classics. Modernity

dawned during this century with V. Swaminath Iyer and Subramanya Bharati. Many powerful modernists like Janaki Ramanand D Jayakantan are replacing the popular novelists like Kalki and Akilan. Kambadasanand and Bharatidasan blazed new poetry. Aruna and Karunanidhi wrote authentic stories about the depressed classes. The other three languages are Telugu, Kannada, and Malayalam. Telugu is spoken by the largest number of people in India, next to Hindi. Poetry tended to be very angry with "Progressives" Sri Sri, then it mellowed with Dasharathi and C Narayana Reddy. Then again 'The Naked Poets,' a young rebellious group became active. In fiction, from Vishwanath Satyanarayan and Narla to T Gopichand and Rachakonda there is a great change in outlook.

Kannada has produced great poets like Bendre, K.V. Puttappa and Shivarudrappa. Then came Gopal Krishna Adiga and Lankesh. In fiction the age of Masti and Gokak is replaced by that of Shivram Karanth and Kulkarni. From Ady Rangcharya to Girish Kamad there are several playwrights who have like Ibsen and Shaw used the stage for problem drama.

Malayalam is the most interesting language as it has Muslim, Christian and Hindu writers in equal proportion. Poets like Vallathol and Sankara kurup were replaced by a younger generation of significant non-conformist writers. Fiction writers like Joseph Mundasseri, Muhamma Basheer, P Keshavadev, and T.S. Pillai have made their mark. Most of the novels and short stories are still lingering round social documentation, romantic realism and protest.

Literature in Marathi language is full of 'storm and stress', revolutionary tendencies being upmost. The greatest follower of Gandhi, Vinob Bhave, is from Maharashtra, so also are leaders like Tilak and Savarkar who advocated Hindu revival, and leftists and socialists like Dange, Gorey Joshi. In literature too there is a constant debate on modernism. Drama and fiction developed, incorporating the latest Western genres like the theatre of absurd. Poetry followed Eliot and Pound

Mardhekar. and Rege and had a revolutionary voice of social protest on Anit Kusumagraj and Karanadikar.

Gujarati is the language of business people and its literature has been influenced to a great extent by Gandhi's non-violence. Much work has been done in research in folk-lore and folk-drama. It can boast of poets like Umashankar Joshi, "Sundaram" and Rajendra Shah, and novelists like Pannalal Patel, "Darshak", Chunnilal Madia who have artistically articulated the conditions of rural Gujarat.



Mirza Ghalib

In Hindi there has been the largest number of translations from other Indian languages. There are poets of great stature like Nirala, Agyeya, Mukhtibodh who gave a modern idiom to the language; there are many other popular and pleasant lyricists like Mahadevi, Pant, Bachchan. Nationalist poetry had a special impact on Hindi and Maithilisharan Gupta, Makhnail Chaturvedi, Naveen, Dinkar and many others wrote poems which, though didactic, were so widely appreciated. In fiction from Premchand to Renu, there has been an emphasis on rural documentation, but metropolitan pressures are also very much in view, particularly in the short stories of Mohan Rakesh, Rajendra Yadav, Kamleshwar and Rajkamal Chaudhari.

Punjabi literature has great zest for life. Poets like Vir Singh, Mohan Singh, Amrita Pritam have made a remarkable contribution; so also the novels of Nanak Singh, Kanwal and the short stories of Duggal, Satindra Singh and Ajit Kaur. This language is the nearest solution to the meeting of tradition and modernity. Poets like Mehjur, Dinanath Nadim and Rahi and prose-writers like Akhtar Mohiuddin and Lone are the more well-known modern writers.

Indian writing in English has been acknowledged abroad with the novels of R.K. Narayan,

Raja Rao, Desani, Dr Mulk Raj Anand, Khushwant Singh, Bhabani Bhattacharya and Malgaonkar. Poets like Nissim Ezekiel, P. Lal, Ramanujan and Kamala Das are published in the English speaking countries and appreciated. Latest in the news are Shobha De, Vikram Seth, Amitabh Chaudhary and Anita Desai, and others.

## Indian writing in English

Indian socio-cultural atmosphere got its first acquaintance with the English language in the mid eighteenth century when it was introduced among the elites of the Indian society through our colonial rulers. Still, after more than two and a half centuries of usage the extent of which has been increasing with each passing decade, the use of this great language is primarily confined among a miniscule section of our diversified social milieu though it has been adopted by India as one of the languages and as a medium for education. Specially, in the realms of higher education, English as a medium has a certain edge over other regional languages and Hindi. It has also gained acceptance as the chief medium of communication in offices and professional discourses. Over the years, with the growing acceptance and popularity of the English language in India, the writing in English or using English as a medium of literary expression has also gained currency. Specially, in the nineties decade, Indian writing in English got a big boost with its popularity in the international market. Though Indian writing in English picked up only after independence, but its inception was way back in the early nineteenth century. Raja Rammohan Ray was the first Indian to effectively express himself in black and white through English though he was initiated to the language when he was in his teens. Thereafter Vivekananda showed his perfect mastery over the language through his evocative prose, which made the west sit up and take notice of the greatness of Hinduism. Tagore also had written some poems in English. However, there is no denying the fact that Indian writings in English were extremely few and far between. Jawaharlal Nehru and

M.K. Gandhi were also great masters of the English language. Nehru's *Discovery of India*, *Glimpses of World History* etc are glaring testimony to not only his profound scholarship but also his absolute mastery over writing lucid prose in the foreign language. Gandhiji used the language in his writings with utmost precision and dexterity. They were followed by the great triumvirate of Anand-Rao-Naryan, who were the first to make Indian writing in English popular among a sizeable section of our English educated people. They primarily wrote fiction and their elegant styles soon caught the imagination of the common reader. Indian writing in English had finally arrived in 1930's after a marginal existence for over a century.

**Mahatma Gandhi :** Though Gandhi used

his mother tongue, Gujarati, to write his famous autobiography, later translated into English by his secretary Mahadev Desai under the title *The Story of My Experiments with Truth* (1929), he used Hindi and English with mastery skill and use. As he lived through a eventful life among his people, who were attempting to liberate themselves from moral decadence, social lethargy, political degradation, economic exploitation, and cultural subordination, Gandhi wrote, day and night, in and out of prisons, for his two journals, *Young India* and *Harjan*. His perceptions, as recorded in his writing, enhance the inherent beauty of the language. Thus, by writing in a language not his own, Gandhi not only enriched English but also contributed to the multifoliate modern Indian literature flowering in two dozen languages, including Indo-English.

**Rabindranath Tagore :** The national awakening in Asia found its expression first in the Indian literature, and its foremost representative writer was Tagore (1861-1941). Tagore was the



first Asian writer to win the Nobel Prize for Literature (1913).

Tagore represents a happy combination of the ancient Indian tradition and the new European consciousness. His sixty year long literary perseverance and practice yielded a wide spectrum of writings cov-



ering all forms of prose and poetry, short stories, novels, essay, etc. He was awarded the Nobel Prize for his slim volume of poems entitled *Gitanjali*. Tagore gave Indian poetry a new type of lyric. Through his collection of stories entitled *Galpa Guchchha*, running into three volumes, Tagore set the pace of the modern short story in India. His famous novels, *Gora* and *Ghare Baire* reflect the genius of a supreme visionary.

In 1930s emerged the first major figure in the field of English literature in the shape of the "Big Three" of Indian fiction : Mulk Raj Anand, Raja Rao and R.K. Narayan.

Mulk Raj Anand is the most westernized of the trio ; Rao, while writing in English and using the genre of the novels has his roots in Sanskrit culture; Narayan's work occupies a middle ground between the approaches of his two illustrious contemporaries.

Anand's reputation was first established by his first two novels, *Untouchable* (1935), which gives an account of "a day in life" of a sweeper and *Coolie* (1936), which follows the fortunes of a peasant boy uprooted from the land. His third novel *The Village* (1939), *Across The Black Wall* (1940) and *The Sword and the Sickle* (1942) is an epic account of the gradual growth of the protagonist's revolutionary consciousness which may be seen as a microcosm of India's movement towards an awareness of the need for independence.

Raja Rao's first novel *Kanthapura* (1938)

his most straightforward. It gives an account of how her village's revolt against a domineering plantation owner comes to be informed by the Gandhian ideal of nonviolence. Rao's major work *The Serpent and the Rope* (1960) is regarded by some Indian critics as the most important Indian novel in English to have appeared to date. Rao has also published the short novels *The Cat and Shakespeare* (1965) and *Comrade Kirillov* (1976).

R.K. Narayan's early novels include the trilogy *Swami and Friends* (1935), *The Bachelor of Arts* (1937) and *The English Teacher* (1945). The novels of his middle period represent his best works; these include *Mr. Sampath* (1949), *The Financial Expert* (1952), *The Guide* (1958), *The Man-Eater of Malgudi* (1961) and *The Sweet-Vendor* (1967). They explore conflicts between traditional Hindu values and western incursions into the society. Narayan's more recent novels include *The Painter of Signs* (1976), *A Tiger for Malgudi* (1983) and *Talkative Man* (1986). He has also published several volumes of short stories, including *An Astrologer's Day* (1947) and *Lawley Road* (1956).

Nirad C. Chaudhari is being regarded as the most controversial of Indian writers in English. He emerged on the scene with his book *The Autobiography of an Unknown Indian* (1951). When he visited England, he recorded his experiences in *A Passage to England* (1959). In *The Continent of Circe* (1965) he puts forward the thesis that the Aryan settlers of India became enfeebled by the climate of North India. He has also published *To Live or not to Live* (1970) and a second volume of autobiography, *Thy Hand, Great Anarch* (1987).

Salman Rushdie won the 1981 Booker Prize for *Midnight's Children* (1981). *Shame* (1983) approaches political events in Pakistan. He has also published *Grimus* (1975), a science



Salman Rushdie

fiction novel, and *The Jaguar Smile* (1987), a journal about war-torn Nicaragua and of course, the banned book—*Satanic Verses*.

Vikram Seth's first novel, *A Suitable Boy* has made him the most hyped-up first-time novelist in the history of Indian literature. *The Golden Gate*, a novel in verse had hit the bestsellers' lists in 1986-87. The *Golden Gate* was followed by three collections of verse: *The Humble Administrator's Garden*, *All You Who Sleep Tonight* and *Beastly Tales From Here and There*.

Anita Desai has written *Fire in the Mountains* (1977), *Clear Light of Day* (1980) and *The Village by the Sea* (1982), *Cry the Peacock* (1963), *Bye-Bye Black Bird* (1971) and *In Custody* (1984). Her subtle unostentatious prose and her sensitive evocation of the inner lives of her characters make her one of the finest talents at work in the Indian novel.

## Other Novelists

The period around Independence provided Khushwant Singh and Manohar Malgonkar with the subject matter of their best novels. Singh's *A Train to Pakistan* (1956) and Malgonkar's *A Bend in the Ganges* (1964) deal with partition. Singh's *I Shall Not Hear the Nightingale* (1959) is about the movements of a Sikh family in the Punjab in the uncertain period before partition and Malgonkar's *The Pnnces* (1963) a sympathetic account of the tragedy of a family who represents the local elite that ruled many native states during the Raj. Kamala Markandya's novels, which include *Nectar in a Sieve* (1954), *A Handful of Rice* (1966) and *The Coffer Dams* (1969) are mainly about rural and urban poverty and dispossession.

Nayantara Sahgal, a niece of Nehru writes about the Indian elite of today and yesterday. Her novels include *This Time of Morning* (1955), *Day in Shadow* (1971), *A Situation in New Delhi* (1977), *Rich Like Us* (1985) and *Plans For Change* (1986), she was winner of the *European Award* of the 1987 Commonwealth Writers Prize.

Arundhati Roy: Although she has written only one novel, she

recognition as the popularity of her maiden novel, 'The God of Small things' transcended geographical boundaries and thereby made her presence feel among the contemporary literacy greats of the west. She also won tremendous critical acclaim for her innovative use of the language and her lyrical and yet honest presentation of her life and times of a Kerala



Arundhati Roy

village which culminated with her winning the prestigious Booker Prize (\$20,000), for her debut literacy venture. Many of the emotions conveyed through her characters are universal and not limited to a particular society or culture. Thus though the setting of her work is at a Kerala village, it has a global touch associated with it.

**Shoba De :** This queen of pulp fiction, she intelligently uses the very special Indian English or Hinglish in her racy, raunchy sensual novels. Though her works are of little literacy value but she has achieved more popularity than many of her contemporaries. She can be regarded as a

trend setter in the genre of sensational-novels, written, with the sole purpose of selling.

**Amitav Ghosh :** He has carved a distinctive niche for himself with his profound works such as *Circle of Reason*, *Calcutta Chromosome*, *Shadow Lines* etc. every work at his amply displays his penchant for inquisitiveness, serious research and diversity.

## Indian Poetry in English

While Indian poetry in English dates back to the early nineteenth century, it is really only in the period since independence that it has come of age. *Pride of place* among poets writing in English must go to Nissim Ezekiel whose verse frequently explores relationships between the external world and the interior life. His volumes of verse include *Time to Change* (1951), *The Unfinished Man* (1960) and *Hymns in Darkness* (1976).

Kamala Das writes about women's emotions with a candour unprecedented in Indian verse and Arun Kolalkar, winner of the 1977 Commonwealth Poetry Prize for his collection *Jajuri*, in which the eponymous village provides a reference point for meditations on Indian life, ancient and modern. Other notable poets after Independence writing in English include Adil Jussawalla, P. Lal, Jayanta Mahapatra, Dom Moraes, Rajagopal Parthasarathy, Gieve Patel and A.K. Ramanujan. Vikram Seth has produced a virtuoso novel in verse, *The Golden Gate* (1986). ■■

# PRINT AND ELECTRONIC MEDIA

The post independence India has witnessed an explosion in the field of mass media like newspapers, magazines, books, radio, TV and films etc. After the British left India, the Indian media could be used to serve the interests of the people and the nation, according to the new visions, policies, and national goals set by the new architects of the nation; the media owners, and the experts.

Communication network was strengthened to preserve the unity and integrity of India and secure the active cooperation of people in the era of planned development and reconstruction.

## Print Media

India is the second largest publisher of newspaper producing more than 20,758 newspapers

with a circulation of about 55.4 millions. Of these, 7,423 are dailies, 6,128 weeklies and 13,105 periodicals besides bi-weeklies and tri-weeklies. An encouraging feature is a boom in Indian language newspapers and magazines, which are more closer to the people. In terms of dailies, Urdu and Hindi papers have also surpassed the number of their counterparts in English.

India is the largest book producer in the Third World and ranks among the first ten in the world. It is also the third largest producer of books in English. However titles on Natural Sciences, Physical Sciences and Technology trail behind.

India has four news agencies—Press Trust of India (PTI); United News of India (UNI), Prajya Bharati and Hindustan Samachar. PTI was set up on August 27, 1947. It took over from Associated Press of India (API) and Reuters. It has around 124 news bureaux in the country. UNI was registered as a company in 1854 and started news operation in 1961. In 1982 it launched Hindi news services 'UNIVARTA'. It operates a news service to the media in four Gulf countries.

### Television

At 6 P.M. on September 15, 1959, Pratima Bhattacharya read out the programmes, the first telecast in India. In the beginning, the TV programmes were telecast only twice a week for only one hour. From 1959 till 1962 the TV programmes were telecast live but in 1962, a 2" V.T.R. of Impey was introduced and in 1966 for the first time a programme was recorded on astronaut Yuri Gagarin. Not only the V.T.R. but a film processing plant was also installed. Meanwhile the telecast of the feature film on 16 m.m. started on Sundays. But each film was shown in two parts on two consecutive Sundays. Gradually transmission was extended to four days.

In 1966 a play was shown every week. G.D. Shukla's play *Aisa Bhi Hota Hai* was telecast in 106 episodes and was very popular with the viewers. Also 10 episodes of *Sara Akash* were telecast, in which Kulbhushan Khanna

Day parade and in 1971 the duration of transmission was extended upto two hours.

In 1971 along with the "School of Television", a programme on news and current affairs was started, like *News Perspective Weekly* in English and *Desh Videsh* and *Aamne-Saamne* in Hindi. A programme for the common man was also introduced in which the then Prime Minister late Mrs. Indira Gandhi was invited. Many people of different sections of society attended the live programme as this was the first time that the Prime Minister was having a word with the people on T.V.

In 1972 a documentary was produced on the Mukti Vahini in the 16 mm format. The people who made it possible were Shiv Sharma who produced the film with Satish Bhalia as cameraman and Rukmani Pati as recordist. English news bulletins were started from December 4, 1971 with Melville de'Mellow as newscaster and Kirti Agrawal as the news editor. An army expert had also been called, and after the news, some war clipping were also shown for 15 minutes. There were senior officials of the Army, Navy and Air Force present in the studio and immediately after the news there was a war analysis. In the year 1972, apart from Delhi, centres were opened in Amritsar, Srinagar and Bombay and with that the transmission time increased to three and half hours.

In 1975, eminent scientist Vikram Sarabhai mooted the idea of educating and entertaining people with the help of 'satellite'. Soon transmissions to this effect began through A.T.S.F. 6 at NASA. In 1973, a production centre was set up at Vigyan Bhawan. After that similar centres were opened at Calcutta, Madras and Lucknow. Till then Akashvani Bhavan had a TV section with DDG TV, P.V. Krishnamoorthy, controller of programmes Iqbal Malavi and deputy controller of programmes Shiv Shankar Sharma.

The development of television was gradual until the microwave technique came. With it the INSAT-1A was launched in July 1982, the nation's first satellite in the beginning.

and a half hours every day. On August 15, 1982 New Delhi, Jalandhar, Shrinagar, Lucknow, Calcutta, Madras and Bombay were linked to the microwave. At first the national network programmes were telecast from 8.30 to 10.30 which for a short time were changed from 9 to 10.45. But from August 11, 1985 the national programme is held from 8.40 P.M. All Kendras telecast the Hindi news bulletin but on a request from the Government of Tamil Nadu, the Madras centre stopped this bulletin from November 1982. The idea of national telecast was mooted at the time of Asian Games in November 1982. Shiv Shankar Sharma, then a Kendra Director, was brought to Delhi from Calcutta and was given the responsibility for the telecast of the Asian Games. The Government was a little apprehensive about the success of the venture and the plans were afoot to give the responsibility to BBC. But Doordarshan decided to shoulder the responsibility alone. All the people in Doordarshan worked as a team covering 22 sports disciplines taking place at 18 different stadia in the three metros. The telecast received kudos from all centres of the world. This telecast ushered in a new chapter in the history of Doordarshan. The coverage of CHOGHAM and NAM were the other feathers in Doordarshan's cap.

In August 15 1989 and January 1990, the Independence Day and the Republic Day were aired live. On December 20 1989 even the swearing in ceremony of the new Cabinet of Ministers and the President's address to the joint session of Parliament was brought live. The year 1989 is also significant because the information and news were included directly (live) in the national bulletins during the general elections on November.

In February 1989 the Central Production Centre at Delhi came into operation. In 1991 the winter session of Parliament was recorded and aired after some cuts. It was not put live due to some technical reasons.

Today, there are heaps of proposals for sponsored programmes and serials with a number of committees and sub-committees to take decisions but, unfortunately it seems to be the

pay-and pass rule, that prevails upon the decisions. Serials on Ramayana, Mahabharat, Vishwamitra, Bahadurshah Zafar, Tipu Sultan and Chanakya have been telecast.

Today there are more than 550 transmitters operating in the country. T.V. covered 82 percent of population and 67.6 percent of the area. The first indigenous Black and White T.V. receiver was produced in India in 1969. The number has grown up to 45.6 million by 1992.

## Radio

Though T.V. has made inroads into Radio audience, this audio media is still very popular with the people, particularly among lower and middle class income group. Radio is less costly and easy to handle and care. Channels are more in Radio than in T.V. And one can do his usual work with radio playing the tune or relaying commentary in the background. In villages, people still rely more on B.B.C. than on T.V. news. Besides, most of the villages in India have no electricity though there might be electric poles and cables. Thus T.V. can be watched only with the help of battery and that is a costly affair. So, Radio is still the most convenient entertainment as well as news medium.

In 1927, Bombay and Calcutta witnessed the installation of two privately owned transmitters. But in real sense the revolution started with the establishment of the Indian Broadcasting Service when the above two transmitters were taken over by the Government of India. The name Indian Broadcasting Service was changed to All India Radio (AIR) in 1936, which was again changed to Akashvani in 1957. Besides Akashvani, Delhi, every state capital had its own radio station. Gradually, important district towns were gifted with a regional radio centre of their own.

In the initial days, the programmes were information oriented. Music relayed was often, classical. Debates and discussion on current socio-economic and political scenario could be heard quite often on radio. The only interest of common people it could cater to was through relaying live

commentary of cricket and hockey match, otherwise, the programmes were stereo-typed, one could listen to hindi songs on Radio Sri Lanka, thus, attracting Indian sponsors. The programmes recorded in India, particularly in Bombay, were sent to Sri Lanka. Binaca Geetmala, a package of hindi songs from latest films broadcast from 8 P.M. on Wednesday was a instant hit. People waited breathlessly to hear the rank of their favorite songs. The rank was decided by the sale of the cassettes and the requests from the Radio Srota Sangh. Many radio fan clubs came into existence to establish contacts with the Radio Sri Lanka. For news, people, even in the remotest villages, listened to BBC Hindi Service. They relied heavily on its news about India.

On May 18, 1988, a National Radio Channel was born. The transmission originates in Delhi and then beamed all over the country through a 1000 K.W. transmitter at Nagpur. National Channel starts at 11 P.M. and continues till the early morning. The programmes include hindi songs, english songs, classical music, and even regional songs.

The Vividh Bharati Service, an exclusive entertainment channel was the only respite for the common people. But it lacked the range of music. Sri Lanka Broadcasting and songs played were





always oldies. Technically speaking, the high power short wave transmitters in Ahmedabad and Bombay carry the transmission. There are 57 Commercial Broadcasting centres. Most of the programmes on Vichitra Karam are heard in all ranges and quality. From Saurashtra to the tip of the to indigenous, more clear, Vichitra Karam has forgotten melodies in the past few years. It is on this channel. Sponsored programmes have been bringing in revenues for the station. It can also be heard. Hava Karam is a station for the numerous grants. Chitra Ganga is a station for every night, is a passage of time, and is a particular theme. At times, it is a station for close its transmission.

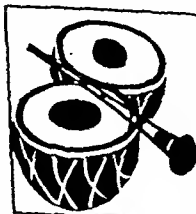
"Foravanti" is for the "Foravanti" songs, and "Play a Song" (Foravanti songs) are popular among students. It is for the purpose of play the records of other songs for the purpose in case of other songs. The records are also for the purpose of the other songs.

The News Service is expected to enjoy more than 25 years, which is a lot of over 24 hours, with the same service in Delhi and the other 15 languages. The service is expected to be a success for the people of the country.

# INDIAN MUSIC

**Raga**

Raga may not be the earliest form of . The earliest melodies can be  in  and folk music. The simple tunes of 



after much formalisation, ~~the~~ regas. Maternal (centuries) ~~the~~ regas in his ~~the~~ ddesi. He ~~the~~

less than five years.  
Thus, even if the  
must remain in custody.

~~CONFIDENTIAL~~



was chanted in a descending progression. This ecclesiastical melody was known as *mergi sangeeta*.

*Gandharva Sangeeta* was a highly grammatised music. It was an *upa veda*. This form of music has been described in *Ramayana*, *Mahabharata*, *Puranas* and Buddhist and Jain texts. *Desi Sangeeta* was not that strict as for the grammar was concerned. The nature of the music varied from region to region, hence the word *desi*.

## Jatis

*Jatis* were the precursors of *ragas*. A *jati* was defined by ten rules of grammar. The scale to which a *jati* could be ascribed was called the *moorchana*. This system seems to have been in practice from about 600 B.C. *Amsa* was the most important note in *jati*.

## Characteristics of Raga

A minimum number of notes are necessary to gain the status of *raga*. A minimum of five notes are necessary. The upper limit is seven. In Hindustani music nine notes are quite common. But in Kamatak music more than seven notes are rare. It is usual to attribute a particular season or time to *ragas*. Some of the important seasonal *ragas* are *Vasant* and *Malhar*. The first is of a spring and the second is of rains.

A Hindustani *raga* has been ascribed to watch of the day. The day is divided into eight watches or *praharas*, each of three hours. *Lalit* is sung in the early morning. *Poorvi* is sung during dusk. A few *ragas* (usually six) have become the major ones, each with a few wives (*raginis*). The *raga* becomes a *nayaka* (hero) and the *ragini* a *nayika* (heroine).

## Tala

*Tala* is rhythmic cycle. It is a rhythmic arrangement of beats in a cyclic manner. Each cycle is complete in itself and is repetitive. The cycle is divided into sections which may or may not be equal. It is formed by the addition of time units in a defined manner. The closed or cycle arrangement differentiates *tala* from rhythm. According to ancient texts there are hundred and eight *talas*.

The more common *talas* now in vogue are :

### Karnatak :

1. *Adi tala*
2. *Jhampatala*
3. *Roopaka tala*
4. *Misra Champu tala*
5. *Khanda Chapu tala*

### Hindustani :

1. *Keharava*
2. *Dadra*
3. *Deepchandi*
4. *Chautal* (used in *dhrupad* and *dhamar*)
5. *Dhamar*
6. *Roopak*
7. *Jhaptal*
8. *Ektal*
9. *Jhumra*
10. *Trital*
11. *Tilvada*

The break down of the 'up and down' movement yields the 'notes' (*svaras*) and a series of *svaras* arranged in a certain order within certain limits is a scale (*saptaka*, *grama*, *meila*). The interval between the 'repetitive' pitches is called an octave or in Indian terminology 'saptak'. The word octave is used because the eighth note is a 'repetition' of the first. The *saptak* signifies that there are seven steps within the span of an octave. The range of an octave is known as *sfhayi*.

## Forms of Indian Music

Musicians in India can invent numerous musical structures with a *raga* and *tala*. These structures can either be closed or open. Closed ones are called *nibaddha*. Open ones are called *anibaddha*. *Nibaddha* being closed structures follow *tala* and has words, meaningful or meaningless and definite parts with preset beginning and end or in other words one can call it a "composition". *Anibaddha* on the contrary may not follow *tala* and may be devoid of words.

## Anibaddha Forms

*Atapa* : *Alapa* is the most important *anibaddha* music. Whether a musician is adroit in his art or not is tested through his *alapa*. *Alapa*, the most elaborate and most delicate presentation of *raga*, demands much patience and sensitivity in rendering. It is a free rendering. *Alapa* precedes a composition, in the same *raga*, which follows. In Kamatak music, *alapa* always precedes

the composition. In case of Hindustani music it may or may not precede the composition:

**Tans :** *Tans* like *alapa* is *anibaddha* as they are not pre-composed. In Hindustani music, particularly in instrumental music they are termed as *altas*. If it is with libretto they are *bol tan-s*. It may be without libretto.

**Neraval :** In Karnataka music, the *bole tan* has its equivalent - the *neraval*. The difference between the two being : a *bole tan* can be placed anywhere in a composition whereas *neraval* is placed at a certain recognised section of the song.

**Sangati :** It resembles with *neraval*. *Yagaraja* is the inventor of this technique. The *sangati* is slight variation of a phrase of song which is preconceived. *Neraval* or the *bole tan* is extensive and is to an extent there and then raga elaboration. As for the 'name' goes it doesn't exist in the north.

**Sargam :** The *sargam* is a word formed of syllables *Sa-Re-Ga-Ma* in Hindustani Music. In Karnataka music it is *Kalpana Svara*. It is also free rendering and practised more often in Karnataka music. Only the note-signatures are used in the raga elaboration and not the meaningful words or nonsense syllables or merely vowels.

**Tanam :** It is found in Karnataka music and is similar to *jode*. It is not as wide in its melodic range and movement as *jode*.

**Jode and Jhala :** These are confined to instrumental music. The *Jode* is a rendition, without *tala*, of the raga in a medium tempo. It always follows the *alapa*. *Jhala* is faster. *Alapa*, *Jode* and *tanam* always precede the closed form or composition. *Tan*, *neraval* and *bole tan* etc. form the parts of melodic improvisation of a composition. These are not independent like the former group, as they are associated with the variations of the raga theme in a song. One may then argue they are closed forms. But being not pre-composed nor set to *tala* we place them in the category of 'free' or 'open' class.

## Nibaddha Forms

These are pre-composed and bound by *tala*.

**Prabandha :** It is one of the earliest formal structures. This form of 'composition' was popular till about the middle ages. But today, the word *prabandha* means any song and not a particular type. Jayadeva is famous for his *prabandhas*.

Jaydeva was a mystic poet and the court-poet of Raja Lakshmana Sena. He wrote *Geet Govinda*, a musical rendering of the love play of Lord Krishna.

**Geeta Govinda :** It is an 'opera' with twenty and four *asta padis* and connecting verses (*slokas*). The *astapadi* has eight (*asta*) sections or feet (*pada*). Each section is set in a *raga* and a *tala*, perhaps the first work where these are mentioned. From the 15th century onwards the *Geeta Govinda* was the only music performed in Jagannath temple at Puri, it became popular all over India and caught fancy of dancers and painters. The literary structure is simple. It is amenable to any style of music. It was one of the finest products of *bhakti* movements.

**Dhrupad :** It is one of the early types that is still surviving. The older ones were known as *dhrupa prabandhas*. Raja Mansingh Tomar of Gwalior and Akbar were great patrons. The 15th and 16th centuries witnessed the finest singers of *dhrupad*.

## The style of rendering

The singing begins with an *alap*. The musician begins in a slow tempo. The tempo, with time, gains speed with melody reaching to upper ranges. This section is devoid of any rhythmic accompaniment, and hence is *anibaddha*. This is followed by *prabandha* or *cheeza*, the *nibaddha* proper. The *prabandha* i.e. song has four parts. The first or opening section is *sthai*. The second is *antara*. Then come *sanchari* and *abhog*.

The *prabandha* (song) is set to *Chautal*. Accompanying percussion instrument is *Mridanga* or *Pakhawaj*. The style is characterised by masculinity in nature as these are rendered in *ragas* only and not *raginis*. The rendition is less grave in melodic progression. Great stress is laid on rhythmic variations. It is one of the most serene and



sober forms of music.

*Dhamar* is always associated with *dhrupad*. Approach and technique are same, the two differ on the use

of *gamaka*. There is greater freedom in *gamaka* in *Dhamar*. It derives its name from *dhamar tal* of fourteen *matras* on which *prabandha* is necessarily set.

### Exponents

The most famous are Svami Hāridas and Tansen. Svami *Haridas* lived at the end of the fifteenth century. He was basically a *bhakti* singer and sang of *Kunj bihari* (one who wanders amongst bowers), the Lord of *Brindavan* and his love, Radha. He has hundred compositions in his credit. Baiju and Tansen are believed to be his *shishyas*. Tansen lived in Gwalior in 16th century. His original name was Tanna Misra. He is credited with new *ragas* such as *Darbani Kanada*, *Miyanki Malhar*, *Miyanki Todi*. He wrote three *ks* : *Sri Ganes-stotra*, *Sangeet sar* and *Raga ala*. Gopal Nayak is one of the earliest musicians of this traditions during the reign of Allauddin Khilji. Other well known exponents were Baiju and Basku in the court of Raja Mansingh and later on in the court of Bahadur Shah Gujarati.

Major gharanas associated with *dhrupad* are Udaipur, Gwalior and Banaras. Ustad Aminuddin Dagar was the legendry *dhrupadiya* of this century. Pandit Siyaram Tiwary has carved a place of his own representing *Darbhangha* style of *dhrupad* singing.

### Kheyal

The word '*Kheyal*' is Persian. Its meaning is 'imagination'. Amir Khusro (13th centry) is said to be the inventor of *Kheyal*. It is the most popular form of vocal music in north India. Two types of *Kheyal* are in vogue the *bada* (large) and the *chota* (small). A *Kheyal* can be divided into two sections

: the *asthayi* (*sthayi*) and *antara*. *Kheyal* is romantic and delicate. In technique and structure it has certain freedom not found in the *dhrupad*. It is due to the efforts of Sullan Mohammad Sharqui (18th century) that the *Kheyal* came in prominence and became accepted as 'classical' from the time of Sadarang Nyamat Khan (18th centry). There are, then, *gharanas* of *Kheyal*. The most prominent are four : Gwalior, Agra, Jaipur and Kirana. The first is the oldest and is also considered the 'mother' of all other *gharanas*.

### Thumri

It is a closed form and a way of singing, very popular in the north. It is a very light form, extremely lyrical. The sentiment is usually erotic, often bordering on the vulgarly sensuous. The word of the song and how it is expressed through musical modulations are more important than the grammar of the *raga*. *Ragas* like *Kagi*, *Khamaj*, *Peelu* and *Bhairavi* are the common favourites of *thumri* singers. Poorab style of singing is popular in Varanasi and Lucknow and is staid. Punjab style of singing is more mercurial and can be heard in and around Punjab.

This form is associated with Radha Krishna *bhakti* cult. It forms an important form of Kathak dance. *Thumri* was extremely popular in 19th century with its centre at Lucknow. Wajid Ali Shah was a composer of fine *thumris*. The song *Babul mora* in *Bhairavi* raga is said to have been created by him on the eve of his departure from Lucknow. The other school of varanasi borrows much from folk forms like *Chaiti* and *Kajri*.

### Tappa

It is a type of singing supposed to have grown from the songs of the camel drivers of North-West India. It is romantic in content with very quick cascades and cadences. The *ragas* are of lighter type-Kafi, *Bhairavi* and such others.

### Tarana

It is a form which has no meaningful words. *Sthayi* and *antara* are there. Its *libretto* is made of

syllables like *naddir*, *tome*, *tarana*, *yalai* without any semantic references. It is generally accepted that these syllables are mnemonics of *tabla* and *sitar* strokes.

### Light Classical Music

**Gazal** : The origin is Persian. The themes revolve around 'love'. These are generally composed of 5-13 couplets (*shers*) which are independent. Same melodic theme is applied to all the couplets for a particular *Gazal* composition. Some of the famous exponents are Master Nadan, Begum Akhtar, Mehdi Hassan, Gulam Ali, Jagjit Singh.

**Qawali** : This is a devotional song sung in a group, but with a solo voice against a chorus. But today the lyrics have become vulgar and obscene.

**Sooftana Kalam** : This is highly grammatised and has well set rhythmic structure. This form is popular in Kashmir valley.

**Keertan** : It literally means 'to sing the praises of' is a typically Vashnavaita congregational singing of Bengal. Starting from Chatanya Deva (1485-1533) it blossomed out into many varieties.

**Bhakti music in Assam** : *Sattriya* music were sung in monasteries. The song types given by Sankaradeva and his disciple Madhavadeva are *bargeet*, the *ankheeya geet*, the *nama ghosha*, the *Keertana*, the *bhatima* and so on. Champu, Chanda and Choutisa. These are characteristic music of Orissa.

**Rabindra Sangeet** : Rabindranath Tagore used Indian *ragas* and *talas* from Indian classical music and has also taken ingredients from the folk music like *keertans*, the *bhatiyali* and the *bauls*. He was also influenced by western music. He created various mixed *ragas* (mixed) like *Bhairava-Bhairavi*, *Darbani Todi-Bhairavi* and created new *talas* such as *Navami* and *Roopakda*.

### Semi-classical music

Between classical music and the popular folk and tribal music there are many regional musics with less stress on grammar. These forms

have been associated with religious festivals, monasteries and temples.

**Tevaram** : These are religious songs in Tamil Nadu addressed to Lord Siva. The songs were composed by the sixty-three *nayanars*.

**Sopana Sangeet** : The songs are sung in Kerala on the doorsteps of temple.

**Veera Saiva Vachanas** : These were devotional songs in Kannada composed by Basava, Allamaprabhu, Akkamahadevi and many others.

**Padas or devaranama** : These were sung in Kannada region by *dasas*. *Dasas* were a set of religious singers of the Madhva faith.

**Bhajan** : *Bhajans* are sung throughout the north in the praises of the Lord. Narsi Mehta of Gujarat, Meera the Princess of Mewad, Kabir, Tulsidas are the chief exponents.

**Sabads** : The Granth, the holy scripture of Sikhs, contains devotional songs known as *sabads* in various ragas.

### Gharanas

The word *Gharana* has its root in the Hindi word *ghar* (from the Sanskrit Word *grah*). It is an abstract noun of *ghar* meaning 'of the house'. Right from the earliest times, there have always been different schools of music in our country. After Akbar, music did not occupy the place of importance, and gifted musicians all over north India were absorbed into different native states. The rulers of these states were generally averse to their musicians travelling to other states. This isolation produced a kind of musical confinement. The enforced isolation gave the musicians no alternative method but to vigorously practise whatever they knew and to develop even greater refinement and subtlety. In the present age of easy movement from place to place, the abolition of princely states, the general tendency towards abandoning all barriers or limitations, and the facilities of radio and television, the modern generation of musicians can not remain tied to any particular *gharana*. Today, we have an integrated, eclectic style of music.

**Qawwal Bache Gharana** : This *gharana* is

### Closed forms of Karnatak Music

**Varnam :** It is a closed form mainly learnt to study the essence of raga. It has three broad parts which together form the whole composition. It involves characteristic phrases, melodic movement of Raga. The composition consists of *Pallavi*, *Anupallavi* and *muktayi* Svara. It is considered to be allegoric. The greatest names are Ksetrajna or Varadaya. All his *padams* are in colloquial Telugu. This form is similar to *thumri* in north India.

**Javali :** It is similar to *padam* so far as the text and music is concerned. It gives direct descriptions of love set in suitable ragas. It is usually of a faster tempo and are favourites with Bharat Natyam dancers. This form is similar to *tappa* in north India.

**Tillanna :** *Tillanna* is sung in later part of the concert. Generally, this is an item in the repertoire of dancer. Its counter part in north India is *tarana*.

said to be the first of its kind in the stylisation and dissemination of *Khyal* and *Khyal gayaki*. The famous exponents were Savant and Bula (brothers). Other famous musicians are Shakkar Khan, Makken Khan and Jaddu Khan all were exponents of *Khyal*. Bada Mohammad Khan and his brothers and sons. The third son, Mubarak Khan, had the greatest success and learnt the art from his father. Another musician was Sadiq Ali Khan who lived in the time of Nawab Wajid Ali Shah of Lucknow.

**Atrauli Gharana :** *Atrauli* is a village about fifty miles from Aligarh in western Uttar Pradesh. This *Gharana* was founded by two brothers Kali Khan and Chand Khan. The *Gharana* is famous for its *Dhrupada* school, but *Khyal* singing is the latest fad. Dullu Khan and Chhajju Khan were two *Dhrupada* singers who sang *Gaurhar Beni*. Other exponents are Hussain Khan, Shahab Khan, Ghulam Ghaus Khan, Kharati Khan, Zahoor Khan, Imam Bux, Dhrupad Khan, Ajmat Hussain Khan, Ustad Alladiya Khan, Haldar Khan, Bashir Khan, Burji Khan, etc. Ustad Alladiya Khan is the brightest jewel of this *Gharana*. Pandit Mallikarjun

Mansoor is one of the finest exponents of *Gharana*. Kishori Amonkar is the only daughter of the famous singer Mogubai Kurdikar of *Bharat*. She is easily one of the most gifted singer among women today in the north.

**Gwallor Gharana :** This *gharana* originated from Abdullah Khan and Kadir Baksh Khan who were brothers. They were reputed singers of *Khyals*. After that came the two sons of Kadir Baksh—Nathan Khan and Pir Bux. The two brothers settled down permanently in Gwallor and trained their sons Haddu Khan. Other exponents are Pandit Vishnu Digambar Paluskar, Manohar Joshi, Ingle Bua, Anna Bua, Hussain Khan, Onkar Nath Thakur, Vanayappa Patwardhan, Narayanrao Vyas, B.R. Deodhar and others. Gravity and sobriety are important features of this *Gharana*.

**Agra Gharana :** *Agra Gharana*, it is believed, had two branches the first sprang from Syamrang and Sarasarang and the other from Imdad Khan. The school of Imdad Khan was oriented towards light music. After these two branches great musicians of this school were Gaggai Bux, Ghulam Abbas Khan, Sher Khan, Bux Khan and Pandit Shivadin. Kallan Khan was the second son of Khuda Bux. Among the students he taught were Faiyaz Khan, Hussain Khan, Nanhe Khan, Bashir Khan and Vilayat Hussain Khan.

Bhaskar Rao Bhakhle was a disciple of Nathan Khan. Nathan Khan Sahib was a master of *layakari*. Abdullah Khan and Vilayat Khan were his sons. Faiyaz Khan Sahib was a master of *Tala*. He is responsible for producing several eminent disciples—Pandit Dilip Kumar Veda, Pandit S.N. Ralanjankar, Ata Hussain Khan, Bande Ali Khan, Latafal Hussain Khan, Kumar Chaubey and Swami Vallabhadas. This other branch of the Agra *Gharana*, which sprang from Imdad Khan, faded away in the early part of the century. Moreover, many of the musicians of this branch, despite good training in *Khyal*, had a greater liking for *Thumari*, *Dadra*, and other varieties. For instance, after Imdad Khan

Ismail Khan, Pyar Khan, Latif Khan, Mahmud Khan and Raja Hussain were all known primarily as *Thumari* singers.

**Saharanpur Gharana :** This Gharana is believed to have begun from Khalifa Mohammad Zama, who was a well-known Sufi. After him, there were several great musicians in this gharana. Bande Ali Khan, the famous *vina* player, Bahram Khan, Zakruddin Khan and Allabande Khan, Nasiruddin Khan, Rahimuddin Khan Dagar, the Dagar brothers (Nasir Moinuddin and Nasir Aminuddin Dagar), and Nasir Zahiruddin and Nasir Faiazuddin Dagar (Younger brothers) were some of the reputed musicians who kept this style in prominence. This *gharana* specialised in *alapa Hori*, and *Dhrupada*.

**Sahasvan Gharana :** This *gharana* is an offshoot of the Gwalior Gharana. It began with Inayat Hussain Khan; the son-in-law of Haddu Khan of Gwalior. Of the several musicians of this *gharana*, five have been outstanding : Inayat Hussain Khan, Haider Khan, Mushtaq Hussain Khan and Nisar Hussain Khan. Its *gayaki* is akin to Gwalior *gayaki*.

**Delhi Gharana :** This *gharana* traces its origin to Tansen but, according to some, this was founded by Miyan Achpal in the 19th century. Some other great musicians of the *Gharana* were Sadiq Khan, Murad Khan, Bahadur Khan, Dilawar Khan, Mir Nasir Ahmed, Panna Lal Gosayin, Noor Khan, Vazir Khan, Ali Baksh Khan, Mohammed Siddiqis Khan and Nisar Ahmad Khan.

**Fatehpur Sikri Gharana :** It did not become a well known *gharana*. It claims its origin from the time of the Mughal Emperor Jahangir. This *gharana* is said to have started with two brothers, Zainu Khan and Zorawar Khan, who were great *Dhrupada* and *Khyal* singers. After these two brothers Dulhe Khan was a very good musician. Ghasit Khan was mainly a *Dhrupada* singer. Other great names are Chhote Khan, Ghulam Rasul Khan and Madar Bux and Sayyad Khan. Most of the singers followed the *dhrupada* style.

**Khurja Gharana :** This *gharana* began in the 18th century with Nathan Khan and his son

Jodhoo Khan. Imam Khan was the son of Jodhoo Khan. He was followed by his son Ghulam Hussain. Zahur Khan and Ghulam Haider Khan, son of Ghulam Hussain continued the traditions of this *gharana*. The last of the *ustads* in this *gharana* was Ustad Allaf Hussain Khan the son of Jahur Khan.

**Jaipur Gharana :** This *gharana* is nearly 160 years old. The most famous exponent was Rajab Ali Khan. Other greats were Sawal Khan, Mushtaq Khan, Mujahid Ali Khan, Sadiq Ali Khan, Jamaluddin Khan, Shamsuddin Ali Khan, Abid Hussain, Amir Bux, Muhammad Ali Khan and Ashiq Ali Khan.

**Bhendi Bazaar Gharana :** Famous *ustads* are Nazir Khan, Chajju Khan, and Aman Ali Khan. Shivkumar Shukla and Ramesh Nadkarni are the pupils of Aman Ali Khan. The most significant characteristics of this *gharana* is that it specialises in *madhyataya Khyal*. The exponents of this *gharana* seldom sing *Vilambit Khyals*.

**Kirana Gharana :** This *gharana* claims its origin from the famous *binkar* Ustad Bande Ali Khan. It was recognised after Ustad Behere Abdul Wahid Khan and Ustad Abdul Karim Khan claimed to belong to it. Other exponents are Suresh Babu Mene, Sawai Gandharva, Gangubai Hangal, Hirabai Barodekar, Saraswati Rane, Bhimsen Joshi, Feroz Dastur, Shakur Khan, and Pran Nath. This *gharana* specialises in singing the *svara* as accurately as possible.

**Rampur Gharana :** This *gharana* is also an offshoot of the Gwalior Gharana. It was founded by Ustad Wazir Khan. Other exponents were Inayat Hussain Khan, Bahadur Hussain and Mohammad Ali. The contemporary exponents are/ were Ishitiaz Hussain Khan, Nisar Hussain Khan, Hafiz Ahmad Khan, Sarfraz Hussain Khan and Ghulam Mustafa. The main features of the *gharana* are similar to Gwalior with the difference that there is specialisation in *taranas*. Bahadur Hussain was a great composer of *taranas*.

## Karnatak Music

The word 'Karnatak' was coined by Vidyaeranya

In the fifteenth century. Ho served Vijayanagar Kingdom as prime minister. However, *Karnatak* denotes south Indian music distinct from the Hindustani music. This form of music has been influenced greatly by the old Dravidian (Tamil) music. A study of the structure of its present forms (Kriti, Kirtanam, Varnam, Padam, Javali) makes it amply clear that this music is maintaining the ancient traditions of the *prabandhas* more closely and rigidly than Hindustani music. The rigid fidelity to the composition inevitably inhibits improvisation. There is more precision in the rhythmic patterns and elaboration on *Tala* in Karnatak music than there is in Hindustani music. This results in the limitation in the scope for rhythmic variation and the same patterns have to be repeated again and again.

As for the *Tala* is concerned, Karnatak music follows the old system and nomenclature of *mantras* (beats). *Ragas* in the south are mostly named in Sanskrit, whereas, in the north, the names are derivatives of the dialects of the regions. The manner of interpretation and the shift of emphasis from structural bondage to free improvisation in Hindustani music is one of the main differences between the two.

**Stalwarts of Karnatak music :** Jallapakkam Ramacharya of Andhra Pradesh is believed to have conceived *Kirti* form of composition, which consists of *pallavi*, *anupallavi* and *charanam*. *Purandardasa*, who hailed from Maharashtra, is said to have composed 475,000 songs (according to his own reference in the *dasarpada*). He developed the *Kriti*, which had just been introduced by Jallapakkam. He also composed the earliest *laksana gitas* and other vocal exercises.

The immortal Trinity of Karnatak music, Thyagaraja, Syama Sastri and Muthuswami Dikshitar, were born in the later half of the nineteenth century. The greatest of them was undoubtedly Thyagaraja. He would make several compositions in a *Raga* so as to explore thoroughly its various musical potentialities. He also introduced what are known as *sangatis*. These are beautiful variations of phrases occurring in *Kritis*.

The post-Trinity period witnessed a variety of new trends and different styles. Some of the important names are Palnam S. Iyer, Poochi Srinivas Iyengar, Veena Tirukodikaval Krishna Iyer (violin), Diksalar (musicologist and Vainika), Govind Pillai (violin), Konerajapuram Vaidyan Kumbakonam Azhaganambi Pillai (Mr. Sarabha Sastri (flute), and P. Daksanamurti Pillai (Mridangam and Thero are several other individual musicians who have established themselves for their originality. Maharajapuram Viswanatha Iyer and Balasubramaniam are worthy of mention in particular.

Sarabha Sastri left behind a legacy. Sanjeeva Rao who held the top position in flute playing for several decades, until the death of T.R. Mahalingam appeared. After the death of Rao, T.S. Swaminatha Pillai was in succession. He is regarded as a much better flautist in *Raga* than Rao. Veena Dhanam is the quintessence of Karnatak music. Her style was handed down to her daughters who, in turn, passed it on to their children. Her grandchildren are Brinda and Mukti. Balasaraswathi (Bharatnatyam) and Veena (flute). The family is the best exponent of *Padams*. Other great names are T.R. Mahalingam (Mali), T. Viswanatham (Viswam), and the late M.S. Gopalakrishnan, T.N. Krishnan and Jayaraman.

## Kriti

*Kriti* is the finest compositional form. The word *Kriti* means "that which is made or created". The musical structure is of greater significance. The text is always religious. It compares *Khayals*, it stands out in the term of literature. Also the structural beauty is better than that of the modern *Khayal*. Like *dhruvams*, it is independent of the *alap*.

*Pallavi*, the *anupallavi* and the *charanam* are the three parts of a *Kriti*. *Pallavi* is the first section followed by *anupallavi*. After *anupallavi* the *pallavi* has to be repeated. The o

were those of Tallapakkam Annamacharya (15th century) written in Telugu. The hey days of *Kṛiti* were in the 18th century with the rise of the *Tīnity* : Syama Sastry, Tyagaraja, Muttusvami Deekshitra. Svati Tirunal, the Mahārāja of Travancore, was also a composer of some eminence.

## Padam

It is a 'lighter' composition. The mood is one of erotic lyricism both in text and music. *Padams* are slower in tempo than *javalī*.

## Musical Instruments

**Jalatarang** : It is a bell type of instrument used in concert music. A series of porcelain cups filled to various levels with water is arranged in a semicircular manner. The required number of cups depending on the *raga* and the range, are laid out and the player, squatting in the centre of the semicircle, beats them with thin bamboo sticks. The pitch varies according to the size of the cups and water filled therein.

**Shahnai** : It is a wind instrument consisting of a conical wooden pipe with a brass mouth-piece. The pipe contains 12 holes : 7 for playing melody and remaining 5 are selectively sealed with wax to control the pitch. Melodic pattern is played on one shehnai and another shehnai or shehnais is/are played as a background tonal support. One of the leading exponents is Ustad Bismillah Khan.

**Flute** : The most ancient and widespread *sushira vadya* is the flute. In *vedas* it is mentioned as *venu* and *nadi*. The former was perhaps of bamboo and the latter of marsh reed. Two types can be identified today: *Seedha*—It has sharp tone more suitable for folk, light music. *Aara*—It has sombre tone and is more difficult to play. Chief exponents are Hari Prasad Chaurasia, Raghunath Seth, Late Pannalal Ghosh.

**Sarangee** : It is used frequently as accompanying instrument. A bowed string instrument made of hollow wood, its lower part of resonator is covered by leather. There is a slender bridge on the membrane and three to four guts

are strung over this, passing onto the pegs. These are the melody strings. Famous exponents are Pandit Ramnarayan and Sabri Khan.

**Sitar** : This is the most important plucked instruments in North India. It is a modification of the ancient instrument *Veena*. The lower end is a gourd resonator attached to a neck and a long fingerboard or *dandi*. The body has a number of curved brass frets which can be adjusted to suit the scale of the *raga*. The later modification contains many resonating strings in addition to the seven strings which give a richer tonal quality. Famous exponents are Pandit Ravishankar, Nikhil Banerjee; Halim Zafar Khan, Ali Akbar Khan and Vilayat Khan.

**Veena** : *Veena* is the most important plucked instrument of south India. It consists of a hollow wooden stem attached to 2 hollow gourd resonators at both ends. The front part of the lower and the main resonator is made of wood. Twenty two fixed frets are attached to the stem in position corresponding to natural, sharp and flat notes. Four strings are for playing melody and three additional strings indicate rhythm. Famous exponents are Zia Moinuddin. Dagar, Asad Ali Khan and S. Balachander.

**Sarod** : A plucked instrument, it is a modification of *rabab*. Its body is made of hollow wood with narrow stem and a broad semispherical resonator which is covered with leather and front part of stem is made of steel. Seven strings are for playing the melody and ten strings for resonating.

**Tamboora (Tanpura)** : Played as a background drone with any kind of vocal and instrumental music, its body is similar to *Veena*, without any fret in the stem. There are four strings.

**Mridanga (Pakhanaj)** : It is the most important percussion instrument of south India. The instrument consists of barrel shaped drum about 2 feet long, made of hollow wood, with one end





slightly wider than the other. The two ends are covered with parchment, which is tightened and loosened by leather braces enclosing small cylindrical wooden blocks which is pushed near to or further from head being tuned. At the centre of head, a black circular patch makes the characteristic musical tonal quality of the instrument. Chief exponents are Pandit Gopal Das, Palghat Raghu and Palghat Mani.

**Tabla :** *Tabla*, practically, is a mridanga divided into two parts : (i) drum played with right hand—*tabla* (*dayan*), (ii) drum played with left hand—*bayan*. Body of *tabla* is scooped out of a barrel shaped wooden piece. The *dayan* is of the form of a large coffee-cup and is made of wood. It is taller than *bayan* which is like an oversized tea-cup and of metal or burnt clay. Famous exponents are Pandit Samta Prasad, Ustad Allarakha, Zakir Hussain, Kishan-Maharaj, and Shafat Khan.



**Violin :** A bowed instrument, its beginning is traced to the *ravana hasta veena*, still played in the villages of north west India. But still it is considered as the gift of western culture. Chief exponents are N Rajan, VC Jog, T.N Krishnan, alquddi Jayaram.

**Harmonium :** It is a recent import from the West. Being a Keyboard instrument, it is tempered. Hence, it can produce neither a *gamaka* nor a *sruti*. Hindustani music has been invaded by it but the Kamatak music has escaped it.

**Santoor :** It is a wooden box. *Santoor* has stretched three strings for every note and there is a bridge at each set of three wires. The instrument is played with a pair of curved sticks.

Chief exponents are Shiv Kumar Sharma and Bhajan Sopori.

**Dholak :** The most popular and widely spread barrel or bulging drums is the *dholak*. It is a folk instrument and rarely, if at all, found on the concert platform. Made of wood, and barrel

shaped, the two mouths are fixed with hide and beaten with sticks or hands.

## Popular Western Music

**Reggae :** Jamaican popular music that developed in the 1960s among Kingston's poor blacks, drawing on American 'soul' music. Many of its highly political songs proclaim the tenets of the Rastafarian religious movements. Springy off-beat rhythm characterises its sound. Bob Marley and his group, the Wailers, and Toots and the Maytals are among the best-known performers.

**Rock :** A hybrid of black and white American musical forms : blues, rhythm and blues, gospel music, country and western music. In 1955 Bill Haley's song 'Rock Around the Clock' set off a rock 'n' roll craze because of its exciting, heavy beat and the urgent call to dance and action of its lyrics.

Most successful are Elvis Presley, Beatles, the Rolling Stones, etc. In the 1970s country rock, a fusion of country and western and rock 'n' roll, grew popular as did disco, a repetitive dance music. English influenced returned with punk rock expressing the discontents of working class youth.

**Jazz :** American musical form developed from black workers' songs, spirituals, and other forms whose harmonic, melodic, and rhythmic elements were mainly African. It came to general notice in the 1920s when whites adapted or imitated it. Jazz began in the south and spread north and west.

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# INDIAN PAINTING

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There is no definite evidence from the Indus Valley Civilization of any painting activity, except the decorations which occur on earthen pots. Geometric, floral and faunal designs in black on red terracotta pots seem to indicate that the art of painting was not entirely unknown.

There is no evidence of any painting dating to the Mauryan period. If there were paintings, it is possible that they were made on fragile materials and did not survive the passing of over 2000 years. Indian painting reached a high level of achievement around Gupta period of Ajanta and at Bagh in central India, where entire settlements of rock-cut caves were decorated with figures of men and women. Some of them, like the famous painting of the Bodhisattva, are graceful and yelpensive, as of pondering the cycle of birth and death.

In Ajanta, one can see the technical skill of the artists, in the way they have shaded the limbs of individual figures to produce a three-dimensional effect, and in their use of white to highlight the nose, cheeks and chest of certain figures. This style was to influence the development of art in Central Asia, and its impact was felt in other

countries as well, as the art styles of the great Gupta travelled across the sea.

When the Gupta empire declined and shrank, its style of art underwent several distinct changes which art historians have classified into three phases. In the 7th to 8th century, which constitutes the first phase, the styles did not change very visibly. Painting activity seems to have shifted at this time from Ajanta caves to the neighbouring caves at Ellora. In the Hindu rock-cut caves called Kailash, artists painted scenes from the Hindu epic, the Ramayana.

The third phase, which dates to the 13th to 16th centuries, is considered a period of slow decadence, since creativity in art was replaced by excellence of craftsmanship. It was during this period that the earliest book illustrations developed. Buddhist scriptures such as the Pranjaparamita preserved on palm-leaf manuscripts were now illustrated for the first time with miniatures in flat, bright hues of red and blue, outlined in black. The Pala rulers of eastern India, who came to power in the 9th century, encouraged this form of art, and so did royal patrons in other parts of India.

In the earlier phase palm-leaf manuscripts were used but in the later phase paper was introduced. Jain manuscripts were illustrated in a slightly larger format. When paper was subsequently introduced, the manuscripts continued to be horizontal in shape, retaining the format of the original palm leaf manuscripts. The themes were derived from Jain sacred texts, but also touched Vaishnava subjects such as Gita Govinda depicting love.

In the courts of the Muslim rulers of south India, a distinctly different style had come into being. It took its cue from the Persian court, and served to illustrate Persian literary works which were being copied at these courts by second rank

slightly wider than the other. The two ends are covered with parchment, which is tightened and loosened by leather braces enclosing small cylindrical wooden blocks which is pushed near to or further from head being tuned. At the centre of head, a black circular patch makes the characteristic musical tonal quality of the instrument. Chief exponents are Pandit Gopal Das, Palghat Raghu and Palghat Mani.

**Tabla :** *Tabla*, practically, is a mridanga divided into two parts : (i) drum played with right hand—*tabla* (*dayan*), (ii) drum played with left hand—*bayan*. Body of *tabla* is scooped out of a barrel shaped wooden piece. The *dayan* is of the form of a large coffee-cup and is made of wood. It is taller than *bayan* which is like an oversized tea-cup and of metal or burnt clay. Famous exponents are Pandit Samta Prasad, Ustad Allarakha, Zakir Hussain, Kishan-Maharaj, and Shafat Khan.



**Violin :** A bowed instrument, its beginning traced to the *ravana hasta veena*, still played in villages of north west India. But still it is considered as the gift of western culture. Chief exponents are N. Rajan, VC Jog, T.N. Krishnan, Laiguddi Jayaram.

**Harmonium :** It is a recent import from the West. Being a Keyboard instrument, it is tempered. Hence, it can produce neither a *gamaka* nor a *sruti*. Hindustani music has been invaded by it but the Kamatak music has escaped it.

**Santoor :** It is a wooden box. *Santoor* has stretched three strings for every note and there is a bridge at each set of three wires. The instrument is played with a pair of curved sticks.

Chief exponents are Shiv Kumar Sharma and Bhajan Sopori.

**Dhotak :** The most popular and widely spread barrel or bulging drums is the *dhotak*. It is a folk instrument and rarely, if at all, found on the concert platform. Made of wood, and barrel

shaped, the two mouths are fixed with hide and beaten with sticks or hands.

## Popular Western Music

**Reggae :** Jamaican popular music that developed in the 1960s among Kingston's poor blacks, drawing on American 'soul' music. Many of its highly political songs proclaim the tenets of the Rastafarian religious movements. Springy beat rhythm characterises its sound. Bob Marley and his group, the Waiters, and Toots and the Maytals are among the best-known performers.

**Rock :** A hybrid of black and white American musical forms : blues, rhythm and blues, gospel music, country and western music. In 1955, Haley's song 'Rock Around the Clock' set off a rock 'n' roll craze because of its exciting, heavy beat and the urgent call to dance and action of its lyrics.

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Persian artists, and a few Indian disciples. The workmanship on these manuscripts is poor. The figures lack imagination, and are alive to the environment in which they were produced.

The new style developed in the court of Akbar, the grateful and most interesting of the Mughal Emperors, who successfully blended Hindu and Islamic elements to create the style that we now call Mughal, in architecture, art and administration. Akbar established workshops or Karkhanas for painters at his court at Fatehpur Sikri, near Agra. Under the guidance of a Persian artist named Mir Sayyid Ali, and a talented calligrapher named Abdus Salam, about a hundred promising young artist of all castes and creeds were trained in the art of miniature painting and in the equally important art calligraphy. Some of them became renowned artists and their names reflected their varied origins, and the fact that they included both Hindus and Muslims. Mansur, for example was Muslim; Govardhan, Basawan and Daswarth were Hindus. They had one thing in common. They excelled and developed under the Emperor's unbiased patronage, and produced some of the finest miniature paintings that have ever been made.

Mughal miniatures defy traditional western classification. They are not always on paper. Not all of them are of a standard size. In fact, some of them are far from miniature in size, being as large as English watercolours. And, not all of them were made as illustrations for books. Some are loose individual paintings gathered in albums called *Muraqqa*. Akbar accumulated an extensive library, and had many manuscripts translated and copied for his collection. Among these are the Hindu epic, the *Mahabharata*, which became known as the *Hamzanama* or the story of the Great War. It was illustrated with about 1400 paintings on coarse cotton cloth. Among other manuscripts written and illustrated under his direction were the *Babumama*, or the story of Babur, the first of the Mughal rulers, and the *Akbarnama*, about his own reign. Both these were done on paper and illustrated with a large number of beautiful paintings. Artists in Akbar's reign used ochre, kaolin, terra verde,

carbon black, malachite and azurite, and later leucis, white, madder lake, indigo and peori, yellow saffron, and a substance extracted from the urine of cows fed on mango leaves. They also used gold, silver and lapis lazuli, the latter imported from Afghanistan. These later paintings are sumptuously coloured and have a lively, detailed style that brings history alive. Every bit of the painting is finely worked, and entire scenes of battle and court life come alive in fascinating detail. Artists used delicate brushes made of squirrel's hair to achieve the most delicate effects.

The paintings done in Akbar's time established new patterns of art. The Persian influence was marked, and yet the court artists were able to convey something of the environment in which the paintings were made.

If Akbar established a new idiom in the field of painting, his son, Jahangir brought it to fruition. The miniatures produced under his patronage are the best of those in the Mughal style. Although he was not as great a ruler as his father, Jahangir had an interest in fauna and flora that led to a large number of lovely paintings of animals, birds and plants being done.

Jahangir's paintings are also characterized by fine brushwork and shading. Optical perspective was meticulously maintained, and the landscape was integrated with the best of the composition. After Jahangir's reign, Mughal painting declined in quality and originality. Jahangir's son and successor, Shah Jahan, the builder of the Taj Mahal, was more interested in architecture than painting. Under his rule, Mughal architecture reached a pinnacle of excellence, but painting suffered from lack of royal interest. In the second half of the 17th century, Mughal painting more or less came to an end, although craftsmen continued to produce works of art for a diminishing market.

Many of the artists trained in the Mughal Karkhanas and their apprentices flocked to the courts of smaller Hindu states in Rajasthan, places such as Bundi, Kotah, Jaipur, Jodhpur and Bikaner, and to the northern hill states of the

Punjab, such as Kangra, Kulu, Nurpur, Chamba, Basohli and Guler. The rulers of Rajasthani states had always encouraged painting, even in the heyday of Mughal art and now they became the major patrons of this form of art. The painting produced in these states drew upon the local artistic and religious traditions as well as those established by the Mughal school. Literary works such as *Gita Govinda*, which tells of passionate love between the god Krishna and Radha, and other works such as the *Bhagawata Purana* and *Rasikpriya* all provided themes that were rich in imagery and symbolism. Musical modes, called ragas also influenced the artists, who strove to capture the mood and flavour of music in representation images.

The conventions established by the painters of the regional schools were adopted by the artists who remained at the Mughal court and at the courts of the southern Muslim states in the Deccan. They are evident in the work of the later Mughal artists who continued to produce paintings until the middle of the nineteenth century.

Rajput painting is the painting of Rajputana and Bundelkhand, and the Punjab Himalayas. The known example ranging from the later part of the sixteenth into the nineteenth century fall into two main groups, Rajasthani (Rajputana and Bundelkhand), and a Pahari. Sikh painting, mainly done in Lahore and Amritsar in the time of Ranjit Singh, is also an immediate derivative of Kangra school.

Mughal painting reflects an interest that is exclusively in persons and events, is essentially an art of portraiture and chronicle. The attitudes of painters to their work is personal for the names of at least a hundred Mughal painters are known from their signatures, while of Rajput painters it would be hard to mention the names of half a dozen. Mughal painting is academic, dramatic, objective, and eclectic; Rajput painting is essentially an aristocratic folk art, appealing to all classes alike, state, lyrical, and inconceivable apart from the life it reflects. After Akbar, Mughal painting is almost devoid of any poetical background

Rajput painting, on the other hand, illustrates every phase of medieval Hindi literature, and indeed, its themes cannot be understood without a thorough knowledge of the Indian epics, the Krishna Lila literature, music and erotics.

Mughal painting is essentially an art of miniature painting, and when enlarged, becomes an easel picture; Indian manuscript illustrations are very rare, and in a totally different tradition, and Rajput painting enlarged, becomes a mural fresco, historically, indeed, is a reduced wall painting. Mughal painting uses self tonalities and atmospheric effects. Rajput colour suggests enamel or stained glass, and while it may be used to establish the planes, is never blended to produce effects. Mughal outline is precise and patient, Rajput's interrupted and allusive or fluent and definitive, but always swift and facile. Relief effect is sought and obtained in Mughal painting by means of shading. Rajput colour is always flat, and a night scene is lighted as evenly as one in full sunlight, the conditions being indicated by accessories (such as candles or torches), rather than represented. Thus in spirit, Mughal painting is modern, Rajput still medieval.

One of the oldest Rajput paintings has probably the Krishna Lila theme, which, in style, lyrical theme and the presentation, and in the language of superscription shows a relation to the Gujarati painting of the fifteenth century

### Tanjore Paintings

From the time of the Chola dynasty, Thanjavur was a centre for art and learning. The fall of the Cholas saw the rise of the Vijaynagar empire and much of the south was unified under the Nayakas, the hereditary chiefs of the Vijaynagar kingdom who continued to patronise the arts. However, invasions and changes in rulership left their mark on the arts, and the Tanjore school of painting imbibed the culture and style of various conquering rulers. The initial influence came from the murals of Ajanta, followed by paintings, which in turn was influenced by North Indian and Deccan

### Rajput elements present in true Mughal painting

- (I) The illustration of Hindu themes in the first quarter of the seventeenth century.
- (II) The adoption of Hindu costume at the courts of Akbar and Jahangir in the Rajput period.
- (III) The fusion of themes and styles in the eighteenth century, especially in Oudha, producing mixed types.
- (IV) The fact that more than half of the Mughal painters were native Hindus.

missionaries from overseas also left their mark. In fact, it is often argued that the initial influence could have been drawn from Greek and Russian iconic altar frontals carried to India by the missionaries.

**Religious theme :** Tanjore paintings can be on wood, ivory, mica, paper or even walls, although the paintings on wood and glass are the best known. Tanjore paintings on wood were commissioned by patrons whose wealth decided the quality of art work on gold leaf or gems. The artists were Kshatriyas of the Raju community, for whom art was a ritual expression rather than a creative one. In fact, paintings followed prescribed themes and it was only on the lowest part that the artist was allowed to exercise his own imagination.

The communist themes for Tanjore paintings are the ones portraying Krishna or the coronation of Rama, called the Rampattabhishekam. The Navnita Krishna, or Krishna holding a ball of butter, is an oft-repeated theme, as is the Darbar Krishna, Radha Krishna or Krishna with Rukmini and Salyabhama. Other popular themes are the Sreeranganatha or sleeping Vishnu, Gajalakshmi and Vishnu with his consort Bhudevi and Sridevi. Uncommon themes are subjects like Markandeya, Dasavatar, Ashtadipala or the secular company school portraits and Sikh themes using the Tanjore technique.

**Technique :** The completion of the Tanjore paintings involved a long - drawn - out procedure involving much skill and craftsmanship. The

method followed was to stick one or two thin layers of Muslin cloth into woods usually jackwood. The glue called sukham, was made from gum Arabic and lime. Onto the cloth a further coat and lime was applied and the surface burnished smooth with a stone.

A relief marked off areas to be raised, gold-leafed or gem-set. Next, these areas were raised with a paste of sawdust and glue. The quality of gold and the intricacy of gold embossing depended on the patron's wealth. Sometimes pure silver leaf or gold-plated silver leaf was used.

Due to the efforts of Meena Muthiah of Madras, there has been a great revival of the previously little known and dying art. Excellent reproductions are available today; the craftsmanship cannot be faulted, but often the paintings seem to lack the religious feel of their ancient counterparts. This can be attributed to the fact that today they are produced commercially, while previously each painting was executed with considerable religious fervour and worshipped in 'puja' rooms and temples, where in the dark interiors of the sanctum sanctorum, by the light of oil lamps, they cast an ethereal spell. Restoration is a very important factor to keep in mind, since the paintings are on wood, they are susceptible to damage.

### Mysore Painting

The Mysore school is not as popular as the Tanjore school, although it is a finer art and less opulent than the Tanjore style. These paintings came into prominence after the fall of Tipu Sultan and the re-establishment of the Wadiyars as the Rajas of Mysore. Although most themes were religious and meant for worship, portraiture was more common than in the Tanjore style.

Under Mumtaz Ali Krishnaraja Wodeyar (1799-1868) who was a lover of music, art, literature and theatre, the traditional arts of Mysore reached their zenith. The Shankaracharya of Sringeri was the religious head, and encouraged traditional forms of worship like icon worship. The dominant foreign influence in Tipu's court was French, and some paintings have distinct European touches in

architecture and accessories.

**Elements of the Mysore Painting :** Mysore paintings are on hand made papers and less heavy and ornate than their Tanjore counterparts. The colour schemes are typical, with frequent use of red and green, and no sharp contrast with gold work, if it is used at all. There is a greater emphasis on fine lines and delicate detail, especially on corner scroll designs, clothing and other decorative elements. The figures are not heavy, and have delicate oval faces and regular features. There is also no gem setting and glass embellishment.

**Exponents of Neo - art movement:** The pioneer of their artistic movement in Bengal was E.B. Havell. He urged the necessity of reviving past traditions of country. After taking the charge of the premier art institution in Calcutta, he revitalised the indigenous system of art and inspired Indian artists. Other exponents of this school of painting are : National Bose, A.K. Haldar, Sarada Ukil, Amrita Shergil, Jamini Roy.

### Mithila Painting

In the Ramayan, Tulsidas gives an elaborate description of how the entire Mithila region of Bihar was decorated for the marriage Sita with Ram. The decorations consisted chiefly of vivid murals depicting mythological personages, deities of the Hindu pantheon and the flora and fauna of the region. This art of painting, an established tradition even then, has survived to this day, passed down for centuries from every Mithili (resident of Mithila) mother to her daughter. Today, these ceremonial decorations-popularly identified as Madhubani paintings.

The fold paintings of Mithila are the exclusive monopoly of women artists. This is a communal activity and one in which young girls are allowed to assist. This enables them to learn early to draw and paint-skills which are put to the test when, as grow-up women, they are expected to present the kohbar-a picture used as a marriage proposal, to a man of their choice. Heavily charged with tantric symbolism in its basic design and composition, a kohbar depicts a pictorial intercourse

### Important Indian Painting Series

- **Chola Series :** The magnificent Chola series of paintings in the Bhudheswara temple illustrate the fight of Siva with the Tipuras, the almost invincible demons, lords of the dreaded castles of irons gold and silver, the story of Sundaramurti, the celestial dancers, Siva watching the dance, Rajaraja and his spiritual guru, all masterpieces of 1000 AD.
- **Hoysala Paintings :** This painting is represented by a rare collection of illustrated palm leaf manuscripts. They are indeed so delicate and charming and so colourful that they form a class of their own.
- **Vijayanagara Painting :** Vijayanagara painting is illustrated by a magnificent series at Hampi of the 15th century AD wherein the spiritual preceptor Vidyaranaya is shown moving in a palanquin in a procession. There are other scenes from the Puranas like Bhikshatana and Mohini effectively portrayed here as well as at Chidambaram. In the Virupaksha Temple, there is Tripurantaka Madanantaka, the marriage of Arjuna and other themes effectively painted. The Nayaka Phase is illustrated not only by Bhikshatana and Mohini at Chidambaram but also by several paintings of the Siva series from the Kapardisvara temple at Tiruvallur, the Tyagaraja temple at Tiruvallur and a fine Jambavan series from Tirupattikunram near Kanchipuram.
- **Chera Paintings :** In Kerala the Chera paintings from Tirunandikkara constitute an important landmark though it is the late ones of the 17th - 18th centuries from Mattancherry Palace, Padmanabhapuram palace, the temples at Tiruvanjikulam, Ettumanoor and others that give effective and adequate examples showing a colourful galaxy of overdecorated form developed from the norm of the late Chaluhyas and Hoysalas.

using the lingam (phallus) and yoni (vulva) symbols. Not only can this fresco be seen in the bedroom wall in Mithila but the first part of the courtship are used to wrap various



Another central figure of Maithili paintings is Krishna, the eighth avatar (incarnation) of Vishnu and one of the most popular gods in India. The ecstatic circle in which he leads the gopis or his cowherd-lovers is interpreted as the wheel of life, of appearances revolving eternally.

If the Shiv lingam represents mystic ecstasy, and Krishna the passionate repetition of the act of love, Rama-the seventh avatar of Vishnu-is archetypal, together with his wife Sita (an incarnation of Vishnu's wife, goddess Lakshmi), of marital devotion.

Other avatars of Vishnu; female deities like Kali, Durga, Parvati - different aspects of the same power; Lakshmi and Saraswati are all honoured at appropriate times.

A scale is established to convey vastness by juxtaposing figures of human beings, animals and birds-with towering forms. The smallest of gaps is then filled with birds, leaves, flowers or ceremonial objects to show the fecundity of nature. Viewed as a whole, the harmony reflected in the utilization of space and in the picturisation, conveys the artist's understanding of peaceful co-existence of man and bird and beast.

Nowadays, paints are generally bought in the bazaars rather than prepared indigenously. Colours are available in powdered form, which are then mixed with goat's milk. For black, the women rely on burnt straw and for white, on powdered rice diluted with water. The colours are usually deep red, green, blue, black, light yellow, pink and lemon. Two kinds of locally made brushes are used once the paints are ready. A small bamboo-twig with a slightly frayed end is used for outlines and tiny details. The filling in of space is done with the aid of a pihua, made from tying a small piece of cloth to a twig. The outline is drawn in a single flow of the brush without preliminary sketching.

Although to the outside world Maithili paintings are available on paper, the usual base on which the women paint are the mud-walls of their dwellings. However, the use of paper (as gift

wrapping) as a canvas was known long before these paintings acquired saleability. It is also used to preserve the more elaborate or less frequently drawn pictures on a smaller-scale, which then serve as aide-memoires.

If the Mithila murals convey a sense of timelessness, it is due to the lack of significant variation in style from generation to generation. Though new schools are born with each generation, similarities in the use of colour, form and iconography appear like strong currents of inheritance and knowledge. Many Maithili women have received recognition for being masters of their art and yet this is not a unique individual sensibility that spreads through their artistic creations. Visible in their offerings is an anonymous creative mind with millenia of tradition and knowledge.

## Modern Painting

Indian artists today are experimenting with a variety of images and materials in an attempt to express the multiplicity of Indian life. Artists such as MF Hussain and Krishen Khanna employ symbols and techniques from the past and present to express the universality of the human experience in the forms and images of India. They are reaching into the past as well as the future; they explore the infinite possibilities of artistic expression. Modern paintings seeing is largely an experience not easy to explain in words. The paintings reflect complexities of modern life. The colour is an important element independent of subject.

Other exponents : S.H. Quazi's paintings have hallucinogenic optical qualities. R.S. Gill, Jaswant Singh's paintings bear the traits of surrealism. Picking up Freudian resonances in sexual suggestions of imagery is the domain of G.R. Santosh. Geometric abstracts are drawn by Viswanadhan. Satish Gujral is both, a painter and muralist in modern style. FN De Souza illustrates Goan Christian Traditions.

Shobha Singh's favourite is canvas painting. SH Raza pays attention on things that make up the figurative part of painting. He, however, prefers landscapes. ■■

# CLASSICAL SCULPTURE

The highest expression of form in art is through sculpture according to Indian canons. *Chitra* is the term for sculpture in the round, while carving in relief, high or low, is styled *ardhachitra*.

The earliest examples of sculpture in India go back to proto-historic times, the Harappan period in the third millennium B.C. The renowned dancing girl from Mohenjodaro is an image in metal which is world famous. Carving in stone and moulding in clay are equally well represented by elegant examples in both classical and folk styles of that early age.

For quite a long time there is a gap of a period unrepresented by sculptural examples, creating a dark age, which comes to an end by the fourth century B.C., when there appear again sculptures of exquisite charm. The Mauryan period with Asoka's craftsmen at work, has examples of such highly sophisticated technique, realistic charm and perfection of study of the anatomy of man, animal bird that there should have been a long tradition behind it, running into centuries.

Sunga sculpture of the second century B.C. represented adequately by the remains of the ived rail and Torana gateway that once adorned the Stupa at Bharhut in central India. These early carvings show the glory of the civilization of ancient India covering every aspect of life in the town and village, in the palace and cottage, on the hill and dale, garden and forest, of the nobleman and peasant, animals, reptiles, and birds both natural and creations of fancy, thymques

The special cell for the master in the monastery is labeled *gandhakuti*. The visit of king Ajatasatru of Magadha and Pinchunjit of Kashi are two famous episodes from the master's life represented at Bharhut. The *Salabhanaka* of the stories of the *pratyaksha* of Buddha which by an exemplary character the master and his disciples

to ultimately become the enlightened one are naively narrated; these stories are the most telling, the *chhedanta*, the *Maheshvara*, the *Maga* and so forth where even the animal's could have so nobly as to invite men to emulate their ethical heights

Contemporary rulers of the Sungas in the Deccan were the *Satavahanas* whose earliest phase of art has given us the famous panels of Surya and Indra in the *Ehava* cave of the second century B.C. in western India, the former in his earliest simple iconographic aspect in a chariot to four horses chasing the demon of darkness and the latter riding his stately elephant in a stroll in his *Nandana* garden of celestial trees, both turbaned and garlanded

## Magnificent Phase

The most magnificent phase of Satavahana art is seen in the exquisitely rendered carving on the rail from Amaravati of 150 A.D., portions of which were saved by Colonel Cohen Mackenzie and others who dug, later making them available in the Madras and British Museums like the remains of the Bharhut rail carved by General Cunningham and transported to the Indian Museum at Calcutta. The meditation depicting the subjugation of the elephant *Nabala* by Buddha in synoptic mode, the famous animal carrier rushing through the clouds of the *Asvika* creating terror by his hooves and later kneeling in prayer at the feet of the master, both the *Asvika* and the *Asvika* citizens in frightened disorder and confusion, is a real master piece. The devotion of the *Asvika* citizens to the *Asvika* feet symbolizing the united effort of the *Asvika* citizens to the *Asvika* feet of the *Asvika* citizens of the *Asvika* feet

The *Asvika* citizens were equal to the *Asvika* citizens

patronage of art, and among their master pieces are favourite themes like Mandhata fallen from the luminous celestial sphere to which he points and admonishes his subjects to curb their desires and benefit by the lesson of his fall. The ephemeral nature of physical charms is tellingly narrated in the theme of Nanda and Sundari.

The Kushanas, who ruled in the north as contemporaries of the Satavahanas in the first two centuries of the Christian era had a large empire that extended from the north western area of Gandhara to nearly the borders of Bihar with one mode of sculpture (Gandhara) in their western and another the indigenous Mathura school in their eastern part. The Gandhara school is mainly determined by Greco - Roman norms and is an Indian theme expressed in foreign technique and spirit. Some of the themes are also foreign like Hercules and the lion on Bacchanalian revelry. Ascetic Buddha reduced to skin and bone as a theme does not occur outside Gandhara art.

### Kushana Art

The Mathura school of Kushana art is more pleasing as a worthy companion of Satavahana art in the south. The rippling stream and the anurag forms of the river goddess are significant in the early Gupta carving of the Varsha panel at Udayagiri in Bhilsa. The sleepy eyes of Kubera with rotund belly and care-free attitude suggest the lord of opulence seated at ease. The portrait of the famous Kushan monarch Kanishka, with the head lost but with inscription mentioning him by name intact, is most interesting for comparison with his portrait on his coins.

The most glorious picture of this is given by India's prince of poets, Kalidasa. Like sapphires interspersed with pearls, white lilies with blooming lotuses, the waves of dark Yamuna are set against the white wavelets of Ganga. While the nether-world is suggested by Nagaraja at the feet of Varaha, the Rishis (saints) in a row at the level of the rivers and oceans recall the terrestrial region, with Devas above signifying the celestial sphere. This monumental carving is indeed a great

masterpiece. Perhaps the most important here is Vishnu going to the rescue of the Ga the mightily elephant caught in the coils of the aquatic monster which he destroys with his Chakra (disc). One of the most magnificent sculptures of the Gupta period is the *Ekamukhalinga* from Khoh now in the All India Museum. Buddha turning the wheel of the Law is the most beautiful representation of the theme and vies with the world-famous Buddha flanked by Bodhisattvas, a magnificent sculpture from Chendi Mendut in Indonesia. The story of Rama and Krishna has been narrated in panels at Deogarh.

### Deccan Sculpture

Corresponding to the Guptas of the north are their contemporaries, the Vakatakas, in the Deccan. They have given wonderful examples of art. The sculpture from Parel near Bombay presents a unique form of Siva with his dwarves playing their instruments, illustrating the celestial orchestra. The magnificent panels of the Rameswara cave in Ellora, and the large expressive panels in the Elephant Cave representing the same theme based on Siva are unique.

### Pala Art

Under the Palas of eastern India, art flourished immensely. Nalanda became a centre of art as of learning and some of the most beautiful icons representing the Buddhist pantheon came from Nalanda, like Jambhala, Tara, Buddha in the lotus position and also Brahmanical figures like Vishnu with his weapons personified, Surya, Sankarshana. Another famous centre of metal work is Kuntala, illustrated by the famous descent of Buddha from heaven by the jewelled ladder flanked by Garuda and Mahabrahma, Buddha turning the wheel of the law, Parnasabari, Ushnisheyyajaya and so on. Stone sculpture is interesting and there are many examples as Vishnu with consorts, Surya, etc.

The Eastern Gangas who ruled Orissa gave us the given exquisite temples of which quite a

number cluster around Bhubaneswar. One of their earliest temples is Parasuramaswara, of the seventh century A.D., Mukteswara, a dream of the sculptor realised is a miniature temple of delicate workmanship with all the architectural features graphically portrayed, including the *torana* gateway, the tank, the Jagamohan mandapa leading on to the deul shrine. Another magnificent temple is Raja - Rani. There are several beautiful sculptures here all around.

## Solar Deity

The most astounding temple monument of the Ganges is the one for the solar deity at Konarak which is literally a monumental chariot on several wheels drawn by seven horses. The monumental sculptures of the running elephant and horse here, once seen, are never forgotten. The sculpture from the Chedi area in Bundelkhand recalling the nuances of both paramara in Malwa, and Chandella, the border territory of the Chedis, has the most magnificent *torana* gateway in Gurgi.

## Chandella Architecture

Chandella sculpture itself is most concentrated in Khajuraho, where the temples dating from the 10th to the 12th century have a wealth of sculpture representing gorgeous royal processions, rare iconographic forms and erotic scenes illustrating many of the *Ratibandhas* of the *Kamasutra*.

## Pallava Architecture

In the south the great Pallava king Mahendravarman, who was at once a sculptor, painter, poet, musician, engineer all in one, created for the first time rock - cut temples with his mandagapattu cave temple proclaiming in verse his achievement as the curious minded king, Vichitrachitta. Among his several simple massive cave temples the most famous undoubtedly is the one at Tiruchirapalli, where a well - known Gangadhara Siva is a striking example of Mahendravarman's time. His son Narasimhavarmam, who was great warrior and patron of art has made Mahabalipuram, the harbour of the Pallava, who had a great navy, immortal through his famous

monuments. They include the five *rathas* (chariots) with their beautiful sculptures. The Kailash temple at Kanchipuram with its precious sculptured decoration is a gem of Pallava art.

## Chola Architecture

The Cholas, who continued the tradition have magnificent early temples at Kodumbalur, Srinivasanallur and other important places in their realm, but the most striking examples of Chola architecture and sculpture is from the huge temples built by the father and son, emperors Rajaraja and Rajendra, at Thanjavur and Gangaikondacholapuram. The Bhikshatana and Kalantaka images at Thanjavur compel attention as do similarly the Nataraja and Chandesanugrahamurte at Gangaikondacholapuram.

## Chalukya Architecture

The Western Chalukyas, of whom Mangalasa must be remembered for his magnificent cave temple at Badami with lovely monolithic panels of Vishnu seated on Sesha, Narasimha, Trivikrama and so forth, and Vikramaditya for his masterly temple at Virupaksha built with the help of his art minded queen Lokamahadevi at pattadakal, have contributed in no small measure to the glory of the Deccani art. Vikramaditya the great patron appreciated the beautiful Pallava temple built by Rajasimha at Kanchipuram, and literally imported almost the same sculptors from the south to beautify his realm with temples like Virupaksha and the sculptor-architect brought over by him to build simulating the architecture at Kanchipuram

## Rashtrakuta and Hoysala

The Rashtrakutas who succeeded the Chalukyas were great builders in their own right and the most magnificent rock-cut temple in South India, the Kailasa, has remained a wonder of creative art. Here some of the sculptures like Ravana shaking Kailasa, Rati and Manmatha the temple stream of Ganga, Yamuna and Sarasvati and so forth are unrivalled. The Hoysalas continued the tradition of the later western Chalukyas and Hoysala Vishnuvardhana's greatest contribution

are the charming embellished temples with exquisite sculptures in Belur and Halebidu besides others. His wife Santala helped him in this patronage of art and devotion to his faith.

## Vijayanagara Period

The Vijayanagara period of art in south India is indeed a great phase where the Chola and Chola traditions are almost combined. Among Vijayanagara monarchs Krishnadevaraya the great emperor flanked by his queens as depicted in metal at Tirupati, will ever be remembered as the builder of several temples including the famous ones for Vittala and Krishna at Hampi his capital.

The huge monolithic sculptures like Rati or parrot, the Gypsy Kurathi, the marriage of Siva and so forth from Madurai that arrest attention displaying the charm of 17th century art is practically the swan song of South Indian art nay Indian art. Yet, the sthapati in south India lives on and the traditional art continues though much shorn of its original vitality.

The bronzes of the Pallavas are famous and among them the most important are perhaps Virupantaka with a single pair of arms in the Sarabhai collection, a gem of deadly poison to save the three worlds from dire calamity. The eight-armed Nataraja from Nallur, Somaskanda from Tiruvallangadu are equally noteworthy. Among the Chola ones, the beautiful bride Parvati now in the Sarabhai collection, Nataraja from Tiruvarangulam in the National Museum, Vinshbhattika and Devi from the Tanjavur Art Gallery, Ardhanarisvara from Tiruvengadu, are all exquisite. The Chola period was the most prolific in the creation of metal images in hundreds and thousands.

Portrait sculpture of the Vijayanagara period in metal can have no better example than Krishna-devaraya and queens, Achyutaraya and some others, which have become as famous as historical relics as objects of art.

Ivory carving of the Nayaka period has given us beautiful examples of Tirumala Nayaka with his queens, a theme that is repeated in stone as

well as in metal.

## Modern Indian sculpture

The range of production of contemporary sculptors both in material and style is very wide. But the works are of comparatively small dimensions since the sculptors have not had opportunity to work on a monumental scale. Traditional materials - wood, metal and stone are still in vogue. Metal has become a usual material over the last decade or two and is used in different ways. Kewal Soni, Daverwalla, M V Kulkarni, Rajnikant Panchal, Chhatrapar and the young Baroda sculptors students of Sankho Chaudhary have given impetus to metal sculpture. In Lucknow Janakiram uses pressed and beaten metal sheets and his style is basically modern.

Lost wax (cire perdue) is traditionally used in Orissa and is called Dokhira. Mukherjee of Calcutta is a well known sculptor using this technique.

Balbir Singh Kotta, Ram Sutar, Girish Kumar Narayan Kulkarni and Sarbari Roy Chaudhary have presented their works in bronze.

During 1960s figurative wood sculpture came abstract. Gajjar J.K., Chillar, Ramesh Pillai and Ajit Chakravarty were the leading sculptors in this style. Some have even tried monumental work on wood like in stone. Biman Das Mahapatra, Pandya and Daverwalla have applied different techniques to produce this kind of work.

Stone, cement plaster and similar hard materials have a ponderability and palpability which make them eminently suitable for sculpture. They can be either modelled or carved. The practice of modelling in clay and working in plaster were introduced by the British in Indian art schools as also drawing and working from casts. Direct carving of stone for original work has begun recently. Plaster was used and continues to be used mostly in the art schools during the training of sculptors. Its lack of durability makes it unsuitable for permanent monuments. Rajnikant Panchal and Kuldip Bhatta have used plaster for their complicated works.

The stone sculptures are of two types, both very heavy in appearance. In one, the treatment and surface are rough and textured, and in the other, a very high polish is obtained especially apparent on curved surfaces. Recent stone sculptures are not very large in size because of the economic difficulties of the young artists. In new work, a greater freedom is noticeable, for example in Balbir Singh Kati's works. Ramkinker has produced Yaksha and Yakshi on either side of the main entrance of the Reserve Bank of India.

As for the working in terracotta is concerned, Chintamani Kar is the leading light. Kar's work is modern and abstract even if it depends on organic forms. Biman Das and Niranjan Pradhan are his students. In professional sculpture we also have glazed ceramic where coloured glazes produce a rich and lustrous surface. Raghunath

Singha and Ramesh Bisht have worked in this medium. Baroda, Delhi and Calcutta are centres for training young sculptors. The artists naturally tend to concentrate in these towns.

Sculpture has always been closely identified with public life and architecture and its very essence is monumentality. There is growing interest in murals and reliefs and for sculpture in open spaces which are part of corporate life such as the parks and the courts of national buildings. Sculpture as decoration or propaganda need not necessarily be of an inferior standard. The world trade exhibitions and the sophisticated interiors of city building offer possibilities which have not so far been fulfilled. The role and image of artist has also changed. Today there is no general goal and so the art of our time is characterized by diversity and free individual expression ■■

# INDIAN THEATRE

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Classical Indian theatre flourished during the first centuries of the Christian era. Aphorisms on acting appear in the writing of Panini, the Sanskrit grammarian of the 5th century B.C., and the references of actors, dancers, mimers, theatrical companies, and academics are found in Kautilya's book on statesmanship, the Arthashastra (4th Century B.C.).

The chief source of classical Indian theatre is Bharat Muni's *Natya-Sastra* (1st century B.C. to 1st century A.D.), a comprehensive treatise on the origin and function of *natya* (dramatic art that is also dance), on types of plays, gesture language, acting, miming, theatre architecture, production, make up, costumes, masks, and various *bhavas* (emotions) and *rasas* (sentiments). Bharat classified drama into ten types. The two most important are *nataka* (heroic), which deals with the exalted themes of gods and kings and draws from history or mythology (*Kalidasa's Shakuntala* and *Bhavabhuti's Uttararamcharita* fall into this

category), and *prakarana* (social), in which the dramatist invents a plot dealing with ordinary human beings, such as a courtesan or a woman of low morals (*Sudraka's Munchhakatika*, "The little Clay Cart," belong to this type).

Plays range from one to ten acts. There are many types of one-act plays, including *bhana* (monologue), in which a single character carries on a dialogue with an invisible one, and *prahasana* (farce), which is classified into two categories: superior and inferior, both dealing with courtesans and crooks. *Bhagavad-Ajuktika* (The Monk and the Harlot) and *Mattavilasa* (Drunken Revelry) are examples of *prahasana*. The ancient Hindus insisted on a small playhouse, because dramas were acted in a highly stylized gesture language with subtle movement of eyes and hands. Hindu theatre differed from its Greek counterpart in temperament and method of production.

The most acclaimed dramatist is Kalidasa. *Shakuntala* represents not only Kalidasa at his

best but also the full flowering of Sanskrit drama. The dramatic situations are built up systematically, the characters are sharply drawn, and the form has a symphonic beauty. Other important playwrights succeeding him include Harsa, Mahendravikramavaraman, Bhavabhuti, and Visakhadatta. An exception is king Sudraka, whose work is perhaps the most theatrical in the entire Sanskrit range. His ten-act play, "The Little Clay Cart" has a wide range of characters : a beautiful courtesan in love with a poor merchant, a noble thief, a corrupt judge, gamblers, cart drivers, executioners, courtiers, a blundering foolish brahman and a lustful brother-in-law of the king.

## Folk theatre

After the decline of Sanskrit drama, folk theatre developed in various regional languages from the 14th through the 19th centuries. Some conventions and stock character of classical drama (stage preliminaries, the opening prayer song, the *sutradhara*, and the *viduvasaka*) were adopted into folk theatre, which lavishly employs music, dance, drumming, exaggerated makeup, mask and signing chorus. Thematically it deals with mythological heroes, medieval romances and social and political events, and it is a rich store of customs, beliefs, legends and rituals. It is a "total theatre", involving all the senses of the spectators.

**Krishna Leela** : A Krishna drama that evolved in the 15th-16th century is known as *Krishna Leela*. This drama is very popular in Vraja region of Uttar Pradesh. Boys used to dress as girls and act and sing in praise of Krishna. The style is semi-narrative and semi-dramatic.

**Ras Leela** : From *Krishna Leela* developed *Ras Leela* in the region. *Mahabharata*, *Bhagavata* and other Puranas, and folk lore provided themes for *Ras Leela*. The songs composed by the medieval poets on the divine pranks of Krishna in Vraj dialect, stuffed here and there with prose form the basis of Ras plays. The round stage on which the *Leela* is performed is known as *Ras Mandal*.

As the play concerns the childhood of

Krishna, the main actors of the play are children. Again, the boys perform the part of girls. The troupe director is called Swami. The play is divided into two parts : *Ras* and *Leela*. *Ras* is the opening part in which Krishna and Radha perform dance sequences. *Leela* starts after *Ras* and the dramatisation of some episodes from Krishna's life. The tradition of dramatising Krishna's past is performed in many regions.

**Ram Leela** : Tulsidas, the composer of *Ramcharitamanasa*, started the tradition of performing Rama plays at Kashi. Episodes from Rama's life are enacted at different places in Kashi during the period of Dassera festival. Rama Leela of Ramnagar is quite famous. At Janakpur, the marriage of Rama and Sita is celebrated in the form of festival. In Kerala, *Krishna Attam* and *Rama Attam* emerged during the same time. From *Rama Attam* evolved the famous dance-drama Kerala-Kathakali.

**Mudiyettu** : It is a ferocious ritualistic dance drama of great antiquity which is annually performed at Kali temples in Kerala.

**Theyyam** : This is a ritualistic dance drama Kerala representing ancestor worship. The dancers also represent local gods and goddesses.

**Kutiyattam** : It is a unique style of staging Sanskrit dramas in Kerala. The traditional actors are known as *Chakyar* and the actresses known as *Nambyar*. The dramas of Bharata, Harsha, Mahendravikrama, Kulashekharavarman and others are played in temple theatres known as Kutlampalam.

**Yakshagana (Karnataka)** : The themes are derived from the Ramayana, Mahabharata and the Puranas. The actors wear very colourful makeup and costumes. The chief narrator is called *Bhagavata*. He is accompanied by an orchestra and chorus singers. Only men participate in this dance-drama. There is jester too. He is called *Konnagi*. Traditionally it is an open-air performance.

**Therukoothu (Tamil Nadu)** : Staging is done at the Draupadi Amman temples from Mar

to July every year. The source is Indian mythology. The narrator-conductor is called *Kattiakkaran*. The jester is called *Komali*. All the roles are played by men only. It is similar to *Yakshagana* of Karnataka.

**Oja-pali (Assam) :** Manas cult used to perform this semi-dramatic narrative style of play. The chief narrator is called *Oja*. *Palis* are his associates forming a chorus playing on the drum and symbols.

**Ankia Nat (Assam) :** It is a one-act drama created by Sankaradeva. Themes are taken from Vaishnava core, the epics and Puranas. Krishna is the most favourite theme.

**Jatra (Bengal) :** It is a popular form of entertainment. The themes are varied—Krishna Jatra, Vidya Sundar jatra (one of the many secular themes), themes based on myths, Swadeshi Jatra (patriotic themes). From musical theatre it has transformed into melodramatic theatre based on prose dialogues. Western instruments too have been adopted.

**Maha Rasa (Manipur) :** It is a grand affair depicting the dance of love, Krishna performing with the beautiful cowherd girls led by Radha. The dances are performed in the dancing halls of the temples.

**Tamasha (Maharashtra) :** It is the most interesting and entertaining folk drama form of Maharashtra. Traditionally it is an open air performance. The *Tamasha* can be divided into 4 parts:

- Prayer songs in praise of Lord Ganesha.
- *Gaulanis* (songs of cowherd girls) are enacted. The jester *Songadya* ensures laughter from the audience.
- Singing of *Lavanis*. These are erotic and enchanting.
- Enactment of skits, farces, and playlets. This part is called *Vag*.

**Nautanki (North India) :** The dialogues are mostly in verse form which are sung in high pitch on the beats of a percussion instrument called *nagara*. Dance of female is provocative. Themes include love, romance and valour, and also social

issues, historical romances and mythological dramas. Laila Majnu, Heer Ranja, Amarsingh Rathore and Shyah Posh are popular *nautanki* plays.

**Macha (M.P.) :** *Macha* means stage. It originated in Ujjain. This musical dance-drama used to be enacted during harvest season during Holi to entertain farmers of Malwa. It is an open-air theatre performed in front of Bhairava temples. Bhairava is the presiding deity of Macha art. Themes are taken from mythological stories, folktales of romance and valour and historical episodes. The jester is called as *Bedhaba* or *Shermarkha*. *Pustakaji* or the prompter who moves behind the actors and prompts when they forget their dialogue in full view of the audience is ever present on the stage, besides the *Yestor*. Music is very important in *macha* plays. The songs are sung in traditional folk tunes and also in classical and semi-classical modes. The musical instruments generally used are Harmonium, Sarangi and Dholak.

**Bhavai (Gujarat) :** It is folk-theatre form full of dancing, singing and humour. The small Bhavai farces known as *Veshas* are in fact social satire. The jester called *Rangalo* add humour. Men act the female roles also. Rajasthan has also its own *Bhavai* tradition similar to Gujarat.

**Kariyala :** A folk drama of Himachal Pradesh, it is also known for its humour and social criticism. *Sutradhar* is called *Kariyattu*. Prose dialogues are interspersed with verses. Humorous characters like *Maskara* or *Vidushaka* add humour.

Urdu and Hindi drama began with the production of *Indrasabha* by Nawab Wajid Ali Shah in 1855 and was developed by the Parsi Theatrical companies until the 1930s.

Parsi theatre was an amalgam of European techniques and local classical forms, folk dramas, farces, and pageants. Mythical titans thundered on the stage. Devils soared in the air, daggers flew, thrones moved, and heroes jumped from high palace walls. Vampire pits, the painted back cloth of a generalized scene, and mechanical devices



to operate flying figures were direct copies of the 19th century Lyceum melodramas and Drury Lane spectacles in London

Among the actors who molded regional language theatres are Shri Narayan Rao Rajhans (popularly known as the Bala Gandharva of Maharashtra stage), Jayashankar Bhojak Sundari of Gujarat, and Sathanam Narasimharao of Andhra. All three were specialized in female roles and were star attractions during the first quarter of the 20th century.

In northern and western Indian, theatre developed in the latter half of the 19th century. The Bombay Parsi companies, using Hindi and Urdu, toured all over India. Their spectacular showmanship, based on a dramatic structure of five acts with songs, dances, comic scenes, and declamatory acting, was copied by regional theatres. The Maharashtrian theatre founded in 1843 by Visnudas Bhawe, a singer-composer-wood-carver in the court of the Raja of Sangli, was developed by powerful dramatics such as Khadilkar, and Godkari, who emphasized Maratha nationalism. The acting style in Maharashtrian theatre remained melodramatic, passionately arousing audiences to laughter or tears. In the south, the popularity of dance dramas has not allowed theatrical realism to flourish. Tamil commercial companies with their song and dance extravaganzas have dominated Andhra Pradesh, Kerala and Karnataka. The most outstanding Tamil company since the independence of India in 1947 has been the T.K.S. Brothers of Madras, famous for trick scenes and gorgeous settings. Also famous is the actor-producer proprietor Rajamanickam, who specializes in mythological plays with an all-male cast, using horses, chariots, processions, replicas of temples, and even elephants.

The first elements of realism were introduced in the 1920s by Sisir Kumar Bhaduri, Naresh Mitra, Ahindra Chowdhuri, and Durga Das Banerji, together with the actresses Probha Devi and Kanka Vati. Sisir performed two most memorable roles: the aging Mughal emperor Aurangzeb and the

steward Hindu philosopher politician Chanakya. Sisir's style has been refined by actor-director Sombhu Mitra and his actress wife Tripti, who worked in the Left-wing People's Theatre movement in the 1940s. With other actors they founded the Bahurupi Group in 1949 and produced many Tagore plays including *Rakta karabi* ("Red Oleanders") and *Bisarjan* (Sacrifice), so far unattempted by any professional company.

Rabindranath Tagore (1861-1941), steeped in Hindu classics and indigenous folk forms, was responsive to European techniques of production. He evolved a dramatic form quite different from those of his contemporaries. He directed and acted in his plays along with his cousins, nephews and students. These productions were staged mostly at his school Santiniketan, in Bengal as a non-professional and experimental theatre. To the Calcutta elite and foreign visitors were attracted to these performances. Tagore created the new opera-dance form in which a Chorus sat on stage and stylized movements. Sometimes Tagore himself sat on a stool acting as the sutradhar and chanted to the accompaniment of music and drum as the dancing players became visual moving pictures.

The star film actor Prithvi Raj Kapoor founded Prithvi Theatres on Bombay in 1944 and brought robust realism to Hindi-drama, especially in his play *"Deewar"* ("The Dividing wall"), that closed down in 1960 with a sense of completeness after many tours throughout India. Prithvi's sons, nephews, and old associates worked in his last company, which became a training centre for many actors who later joined the films. Among them was the outstanding stage actress Zohra Sehgal, a former dance-partner of Uday Shankar in the 1930s. Out of Prithvi's eight productions in which he always played the lead, the best was *Pathan* (1946), which ran for 558 nights. It deals with the friendship between a tribal Muslim Khan and a Hindu dewan and is set in the rugged frontier region where Prithvi came. This tragedy of two archtypes in which the Khan sacrifices his son to save the

le of his friend's son had intensity of action, smoldering passion and unity of mood and achieved the highest quality of realism on the Hindi stage to this day. The modern Hindi theatre was born in 1962 with Ebrahim Alkazi's production of Mohan Rakesh's 'Asadh Ka Ed Din'. The play describes the conflict of the great Sanskrit poet Kalidasa between his career in the royal court and his beloved in the village. Alkazi's lyrical and sensitive handling of the characters and his design had a refreshing and unusual appeal.

Alkazi produced and directed the largest number of plays in diverse styles with stunning theatricality. They include *Oedipus*, *Orthello*, *The Miser*, *Murder in the Cathedral*, *Yerma*, *The Caucasian Chalk Circle*, Anouilh's *Antigone*, *Waiting for Godot*, *The House of Bernarda Alba*, a new experience for his actors and disciples. As director of the National School of Drama of New Delhi, during his 15 years teaching and directing, he produced regional language plays, and put them on an all-India map.

His production *Dharam Vir Bharati's Andhayug* in the ruins of Ferozeshah Kotla at Delhi was a new experience for the audience. The play relates to the feud between the Kauravas and the Pandavas, presided over by the blind king Dhritarashtra, who sees the sure destruction of his sons and nephew but cannot stop it.

His production of *Tughlaq* written by the Kanad writer Girish Kamad deals with the life of a 14th century eccentric sultan, his brutality, wisdom, intrigues, loneliness and the political failure of this visionary. Manohar Singh, Chief of the National Repertory Company in New Delhi, played the role with demonic power and is still identified with the character he has been playing on and off for the last 12 years.

Alkazi's production of *Sultan Razia* by Balwant Gargi, portrayed a 13th century Slave Dynasty Queen and her passion for her Abyssinian slave. The male-oriented society of her times and court intrigues finally destroyed her. Rohini Hatangadi played the tragic Queen.

Among contemporary playwrights, Girish Karnad, Badal Sinar and Vijay Tendulkar stand out for their bold and brilliant works. In Tendulkar's *Sakharam Binder* the hero Sakharam is a rogue, a drunkard and a gambler. He brings home a new woman every now and then, keeps her for some time and when tired of her kicks her out. In *Champa* a saucy tart, he meets his match. He gets jealous of a friend on whom this woman casts amorous glances. After a drunken bout he murders her in a fit of jealousy. But the playwright does not damn the hero. In fact, Sakharam emerges as an honest man in a society of moralists and hypocrites. All the characters are social outcasts who reject the society which has rejected them.

Tendulkar's other important play is *Ghasiram Kotwal* based on an episode in Marathi history. Ghasiram, a poor Brahmin, is humiliated and rejected by the Poona Brahmins, and he goes back to his village. He rears his daughter who grows into a beautiful girl, brings her to Poona and presents her to the all-powerful Nana Phadnis. Nana appoints Ghasiram as the city Kotwal who becomes tyrant. In the end his daughter is killed as a result of palace intrigues and he himself is stoned to death by Poona Brahmins. The Brahmins do not so much represent a caste in Tendulkar's play as a ruling class. The play employs songs, dances, stylized movements and rhythms based on the Tamasha folk form.

In the folk theatre experiments, Habib Tanvir works with a troupe of tribal actors and actresses of Madhya Pradesh. His company with its raw vitality, and earthy quality, performs in villages and cities. His most popular play has been *Charandas Chor*, portraying the adventures of a clever thief who reverses social values and proves that right is wrong and wrong is right in our corrupt society.

In Bengal, Late Utpal Dutt, director of People's Little Theatre, was an extreme leftist. Almost all his productions dealt with the current situation in Bengal. The authorities banned some of them and even put Utpal behind the bars at

times. But his was a dynamic theatre with super stagecraft, choreography and acting.

Shyamanand Jalan has created a little island of Hindi Theatre in Calcutta. A founder member of 'Anamika' which is run by the Marwari Community as a forum to promote Hindi drama, he broke away from the parent organisation due to its puritanical bias and founded his own group to experiment freely. Jalan made a crack in the traditional moral values of his big business fraternity by his theatre activities.

There are other playwrights who are drawn to the folk theatre and borrow from it its stylized speech and action. In Maharashtra P.L. Deshpande and G.D. Madgulkar have given a new status to the much disguised Tamasha; in Gujarat, Dina Pathak has reflected folk legends rural life in her Bhavai operas.

In the Panjabi theatre, Sheila Bhatia's operas take their impulse from folk melodies. Her productions of *Heer Ranjha* (a love legend), *Rukhe Khe* (an account of famine and exploitation of the farm labourer), and *Chann Badlam Da* (a collage of rural songs, lullabies, ceremonials and dances) have been extremely popular with city audiences which are drawn to them not merely because of nostalgia for the past but because of a genuine cultural identification.

Vijaya Mehta and Amal Allana are two of the outstanding avant-garde women directors. Vijaya Mehta's production of *Shakuntala* and Brecht's *the Caucasian Chalk Circle* in Marathi language and the Tamasha folk form have been brilliant expressions. Amal Allana and her designer husband Nissar work as a team. Her productions

include Punjabi version of *Desire Under the Elms*, the Hindi version of Brecht's *The Exception and The Rule*; and Lorca's *The House of Bernard Alba*.

Amal possesses great emotional power and injects fire into the players. Her production of *Maha-Bohraj* in a wide open-air stage had multiple action, freezes, and presented characters in different situations, expressing the irony and contradiction of life in a stereoscopic view.

Among actresses, Sunekha Sikri and Usha Baokar of the National Repertory Company, New Delhi, have added to the vitality of contemporary theatre by their brilliant portrayal of complex roles in plays such as Osborn's Hindi version of *Look Back in Anger*, 7th century Sanskrit one-act *Mattavilasa*, Mohan Rakesh's *Aadhe Adhure*, Girish Kamad's *Tughlaq* and Shanta Gandhi's folk opera *Meena Gurjari*.

Many centres for theatrical training have been established. Among the most important are the National School of Drama and the Asian Theatre Institute in New Delhi, Sangeeta Natak Akademi (National Academy of Music, Dance, and Drama) in New Delhi, and the National Centre for the Performing Arts in Bombay.

Indian genius still lies in its dance dramas which have a unique form based on centuries of unbroken tradition. There are very few professional theatre companies in the whole of India, but thousands of amateurs productions are staged every year by organized groups. Out of this intense experimental activity, a contemporary national theatre has evolved, which has distinct flavour of song, dance, colour, theme and mood of its people. ■■

# CULTURAL INSTITUTIONS

Central and state governments strive for promotion and dissemination of art and culture through national and regional academies of art,

dance, drama, music and letters. Zonal Cultural Centres have been set up for projecting, preserving and sustaining cultural kinship that transcends

territorial limits. In addition, Indira Gandhi National Centre for Arts has been set up at New Delhi as a resource centre and data base. All these institutions and Departments of Art and Culture are helped in their objective by media and voluntary agencies. Apart from this, some eminent persons in the field of fine arts are nominated by President to the Rajya Sabha.

### Lalit Kala Akademi

To promote the understanding of Indian art, both within and outside the country, Government established Lalit Kala Akademi (National Academy of Fine Arts) in 1954. The Akademi strives to promote this objective through exhibitions, publications, workshops and camps. Every year it holds a national exhibition and every three years, Triennale-India, an international exhibition. The Akademi brings out monographs and portfolios on ancient Indian art both in English and Hindi. It also publishes a bi-annual art journal *Lalit Kala Contemporary* and also *Lalit kala* specifically meant for ancient Indian art. Hindi journal *Samkaleen Kala* is also a regular feature.

Lalit Kala Akademi also undertakes to bring out multi-colour reproduction of artist's work which is mainly devoted to contemporary Indian art. Occasionally, books on contemporary art by eminent writers and art critics are also brought out besides important seminar papers and illustrated catalogues for all important and major exhibitions. The Akademi organises artist's camps, seminars and lectures and gives grants to recognised art organisations. It honours eminent artists by electing them as fellows. The Akademi has permanent artists' studio complex for training and practice in painting, ceramics, graphics and sculpture at New Delhi, Calcutta, Lucknow, Bhubaneswar and Madras. It has regional centres at Madras and Lucknow where facilities for practical training and work have also been provided. A new regional centre has been set up at Bhubaneswar. The Akademi has a specialised art reference library. It has important publications on Indian and western art.

### Sangeet Natak Akademi

Sangeet Natak Akademi, National Academy of Music, Dance, and Drama, was set up in 1955 to promote the performing arts in collaboration with states and voluntary organisations. It seeks increased public appreciation of these art forms through sponsorship, research and dissemination. It holds seminars and festivals, presents awards to outstanding performing artistes, gives financial assistance for theatre productions, extends financial help to traditional teachers and grants scholarships to students. It operates a scheme of interstate exchange of troupes to promote national and cultural integration through regional festivals and bringing rare art forms of the region to the fore.

The Akademi has set up a special unit for surveying and documenting various theatrical, musical and dance forms in the country. Its disc and tape library has the largest collection of Indian classical, folk and tribal music and dance and theatre items. The Akademi runs two national institutions for training in dance: Kathak Kendra, New Delhi and Jawaharlal Nehru Manipur Dance Academy, Imphal. It helps in promoting puppet theatre. It gives subsidy for publication of books in various Indian languages and English on music, dance and drama. It also honours outstanding performing artistes and schools by conferring fellowship and annual awards.

### Sahitya Akademi

Sahitya Akademi (National Academy of Letters) was set up in March 1954 for development of Indian letters and to set high literacy standards to foster and coordinate literary activities in all Indian languages. It seeks to promote through them cultural unity of the country. The Akademi functions as an autonomous organisation. It honours persons of undisputed eminence in literature by electing them fellows whose number at no time is to exceed 21.

The Akademi offers annual awards to works of outstanding merit in 22 recognised languages. It also gives prizes for translation works. The

Akademi organises literary gatherings, workshops, seminars, symposia, and writers' meet to provide opportunities for writers to exchange views. It also provides grants to enable writers of one region to visit regions other than their own. It maintains a library at Rabindra Bhavan, New Delhi. It also maintains contact with several literary and cultural institutions in foreign countries to encourage better appreciation of Indian literature abroad.

The Akademi arranges Samvatsar Lectures (annual lectures) delivered by eminent writers at the time of 'Annual Festival of Letters' generally held in February. It has introduced a programme 'Meet the Author' where eminent men of letters are invited to speak about their own personal experiences. Under another programme 'Men and Books', eminent persons, not necessarily literary men, are invited to speak on literary books they have enjoyed reading or books which have given them new insights.

The Akademi has established four regional boards for pursuit of inter-regional studies. Besides, a language development board for development of non-recognised Indian languages has been established. The Akademi is also working on a National Register of Translators.

### National School of Drama

National School of Drama (NSD), a premier theatre institution, was established in 1959 by Sangeet Natak Akademi. In 1975, the School was registered as an autonomous institution, fully financed by the Government. It imparts training in dramatics and propagates theatre in the country. Teaching is imparted in a scientific way to talented and enthusiastic young students. It has played a constructive role in improving overall standard of plays and stage craft. It has gone to the regions for organising theatre workshops and children's theatre training courses to make available training facilities locally and initiate its students in folk, traditional and regional theatre forms. Under its three-year training programme, it awards scholarships and provides one-year fellowships.

The School also provides training in theatre, contributes to development of Indian theatre, training actors, directors and stage technicians, conducts a three-year diploma course and provides advanced theatre training in dramatic literature, acting, stage craft and production.

Repertory company attached to the School performs world classics as well as contemporary Indian and western plays. Besides staging performances in Delhi, it tours other parts of the country. NSD has also started Theatre-on-Education Company of adults playing for Children, a concept of meaningful theatre for children.

### Archaeological Survey of India

Archaeological Survey of India, founded in 1861, is the leading institution in archaeological research and activities. It conducts programmes of large scale problem-oriented exploration and excavation of prehistoric, protohistoric and ancient sites, besides architectural surveys, landscaping around monuments, chemical preservation of sculptures, monuments and museum objects, epigraph research, maintenance of 300 archaeological museums located near ancient sites abroad. The landmark of the Indian archaeology is the discovery of Indus Valley Civilization in 1922. The most important sites excavated include Lothal, Kalibangan, Ropar, Surkolada, Banawali, Mohenjo-daro and Daimabad.

Indian archaeologists have been successful in bridging the gap once known as 'Dark Period' of Indian history through discovery of neolithic and chalcolithic cultures in different parts of India. Notable sites include Gufkral, Burzahom, Mehargarh, Chapanimando, Koldiwha, Brahmagiri, Banawali, Inamgaon, Kayath, Nagda, Sanghol, Srivastava, Hastinapur, Atranjikhhera, Bhagwanpur, Jakhli, Mathura, etc.

Important sites excavated recently are Udaigiri in Orissa which exposed monastery ruins, including 'Madhopur' Mahavihar, Lalitgiri in Orissa which revealed Chaitya griha and monastery, Sannarayana in Karnataka exposed Ashokan inscription along

Buddhist remains and Alampur in Andhra Pradesh revealed temple structures. Shellmidden sites were unearthed in Andaman and Nicobar Islands. Excavation at St. Augustine Church in Goa revealed detailed plan of a bell tower and excavation at Thaneshwar exposed remains from the Kushana to the late Mughal period. More than 5,000 ancient remains and archaeological monuments protected under law as monuments of national importance, are looked after by ASI. Those not of national importance are maintained by States.

Fourteen Indian monuments and five natural sites were inscribed under World Heritage List. They include caves at Ajanta, Kailasa Temple at Ellora, and Elephanta Caves in Maharashtra ; Churches and Convents in Goa; Fatehpur Sikri, Agra Fort and Taj Mahal in Agra; Mahabalipuram Ratha, Brihadesvara Temple at Thanjavur in Tamil Nadu ; Sun temple at Konark in Orissa ; monuments at Hampi, temples at Pattadakal in Karnataka; temples at Khajuraho in M.P.; and Buddhist monuments at Ranchi in Bihar. Natural sites are Keoldeo National Park, Sunderbans National Park, Nanda Devi National Park and Manas Wild Life sanctuary.

Implementation of the Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the Antiquities and Art Treasure Act, 1972 is also carried out by ASI. Under the latter, any object which is over 100 years old (75 years in case of manuscripts, documents and the like) having artistic and archaeological interest cannot be exported without a valid permit. ASI maintains 31 museums located near ancient sites and monuments with a view to propagating cultural activities of that particular locality. It conducts a two year Post-Graduate diploma course in Archaeology at the Institute of Archaeology in Delhi which attracts students from India and abroad. ASI publishes many of the memoirs, guide books and picture postcards of different monuments, besides its annual 'Indian Archaeology A Review'. ASI library is one of the oldest in the country. It contains rare books and journals. There is a separate library of

photographs apart from study collection of ancient ceramics and coins of Indo-Pak sub-continent. The Institute also conducts short term courses in conservation and epigraphy.

## Marine Archaeology

*Marine Archaeology Unit* was set up in National Institute of Oceanography, Goa, with a view to exploring and excavating submerged ports and sunken ships. The project, supported by Department of Science and Technology, undertook offshore survey of legendary city of Dwarka on Gujarat coast, supposed to have been built by Sri Krishna and subsequently submerged under the sea. Underwater excavation in the ancient harbour seaward of Temple of Sea God (Samudra-narayana) brought to light a submerged structure of massive building blocks corroborating the findings of onshore excavation in which three temples (1st-9th century A.D.) and two townships (10th and 15th century B.C.) were found destroyed by sea. Offshore exploration of Bet Dwarka, an island settlement off Port Okha, associated with Sri Krishna's legend, yielded conclusive evidence of the submergence of a 15th-14th century B.C. town. A massive wall in situ in 3.6 mtr. water depth at high tide is found built on a wave-cut bench. Among important prehistoric antiquities recovered from underwater excavation, mention may be made of a unique late Indus Valley seal and an inscribed jar mentioning Sea God and seeking his protection.

Manne records of state and National Archives were examined and particulars of 200 shipwrecks in Indian waters were noted. Among these 30 wrecks are of historical significance.

## Museums

In the field of Indian art and archaeology Government has established National Museum New Delhi, Indian Museum Calcutta and Salar Jung Museum Hyderabad. Besides Allahabad Museum has also been taken over from Allahabad Municipal Corporation since 29 April 1956. In contemporary history and art, Victoria Memorial Hall

## CULTURAL MOSAIC

Calcutta, National Gallery of Modern Art, New Delhi and Nehru Memorial Museum and Library, New Delhi are three museums financed by Government. National Museum, established in 1948, is one of the premier museums and its main activities are in the field of acquisition, exhibition, conservation, publication and education.

Indian Museum, first museum of the country established in 1814, is the most illustrious art and archaeology museum. Salar Jung Museum has more than 7,500 manuscripts in Persian, Arabic and Urdu. Victoria Memorial Hall contains relics and monuments relating to British period in India (1700-1900). There are at present 400 museums in the country managed by different agencies. Regular degree and diploma courses in Museology are being conducted by Universities.

### National Council of Science Museum

National Council of Science Museums (NCSM), Calcutta was set up in April 1978 as an autonomous organisation, for popularisation of science through the then existing science museums in India viz Birla Industrial and Technological Museum (BITM), Calcutta, Visvesvaraya Industrial and Technological Museum (VITM), Bangalore and Nehru Science Centre, Bombay. It was also given the task of setting up a chain of science museums and centres of various levels at different places. Within a decade, science museums and centres came up at Purulia, Gulbarga, Dharampur, Tirunelveli, Patna and Bombay. Two regional science centres at Bhuvneshwar and Lucknow were set up in September 1989. Two such centres at Guwahati and Nagpur and National Science Centre in Delhi have also been completed.

NCSM has set up a Central Research and Training Laboratory (CRTL) for research and development of exhibit prototypes and training of museum personnel in all disciplines. The Council through its constituent units regularly conducts multifarious educational activities for children, students, teachers, rural people, housewives and

unemployed youth.

### National Archives of India (NAI)

National Archives of India (NAI), known since independence as Imperial Record Department, was established in 1891. It is the premier repository in Asia, with its holdings running over 30 km of linear shelf space. It has three repositories at Bhopal, Jaipur and Pondicherry. Major activities of NAI include : (i) accession of public records, making such records accessible to various government agencies and researchers, and preparation of reference material; (ii) preservation and maintenance of records; (iii) conducting of scientific investigations; (iv) implementing records management programmes; (v) rendering technical assistance to outside agencies in the field, and (vi) promoting archival consciousness. 'Archives Week' is celebrated every year for this purpose.

### Manuscript Libraries

Khuda Bakhsh Oriental Public Library, Patna. Khuda Bakhsh Oriental Public Library, Patna, established in 1891, has the richest collection of Arabic and Persian manuscripts and Mughal paintings in the subcontinent. The Library was declared as institution of national importance in 1961 by Act of Parliament. Besides its traditional activities of acquisition and preservation of manuscripts and books, it has brought out subjectwise 35 volumes of descriptive catalogues of its manuscripts and brings out a quarterly research journal. It has published critical editions of rare manuscripts like *Diwan-e-Hafiz*, *Diwan-e-Mushafi*, *Diwan-e-Munawwar*, etc., besides monographs, lectures, reports and of rare and nearly extinct periodicals of the Khuda Bakhsh Award has also been instituted in the pattern of Jnanpith and Sahitya Akademi Awards for outstanding scholars in the various disciplines of the Library.

**TMSSM Library :** Thanjavur Mahalingapuram Serfoji's Sarasvati Mahal (TMSSM) Library, Thanjavur is one of the few medieval libraries

the world. It is a majestic repository of culture built up by successive dynasties of Nayak and Maratha, kings of Tanjore. It was made a public library in 1918 by Madras Government. The Library was registered on 9 July 1986 as a society under the Tamil Nadu Registration Act, 1975. It has a rare and rich collection of about 44,512 manuscripts in Sanskrit, Marathi, Tamil, Telugu and other languages. A number of miniature paintings and colour drawings are very attractive. Besides it has a rare collection of about 4,500 books in European languages and 40,888 books in Indian languages covering various disciplines. The Library is also publishing books and a quarterly journal.

**Rampur Raza Library :** Rampur has a collection of about 50,000 printed books, 15,000 manuscripts and about 900 miniature paintings, *bhojpatras* etc. Nearly all important oriental languages like Arabic, Persian, Sanskrit, Urdu, Turkish, Hindi, and Pushto are covered and manuscripts in these languages represent all important subjects. The Library has a large number of rare manuscripts. Other attractions of the collection are miniature paintings which are considered immensely valuable for researchers, scholars of Iranian tradition and Indo-Mughal art style of paintings.

**Asiatic Society :** Asiatic Society, Calcutta was founded in 1784 by Sir William Jones (1746-1794), eminent Indologist, with the objective of enquiring into history, antiquities, arts, science and literature of Asia. The Society has a rich collection of rare books, manuscripts, coins, old paintings, inscription and archival materials. It maintains a Museum which includes an Ashokan Rock Edict, copper plates range in date from the third century B.C to the 18th century and important documents for the study of Indian history and culture. The coin collections cover practically the whole range of Indian numismatics from the earliest issue to the latest. Among the important activities of the Society is publication of *Bibliotheca India*, which consists of a series of oriental texts

in Sanskrit, Arabic, Persian, Bengali, Tibetan and other Asian languages and their translations.

## Libraries

Constitutionally the subject 'libraries' is included in State List. Centre has jurisdiction only over libraries established by it and institutions of national importance as declared by it. There are more than 60,000 libraries in the country

National Library, Calcutta serves as a permanent repository of all reading and information material produced in India. Under the Delivery of Books Act, 1954 the Library is entitled to receive one copy of each publication published in the country. It is also a repository of United Nations Publications. Central Reference Library, Calcutta is responsible for compilation, publication and sale of *Indian National Bibliography*. This is a monthly/annual bibliography containing entries of current Indian publications in major Indian languages and English. The Library is also compiling and publishing *Index Indiana*, an annual index of selected articles appearing in current Indian periodicals in major Indian languages

Delhi Public Library established in 1951 with financial and technical assistance from UNESCO has since developed into a big metropolitan public library system consisting of a central library, a zonal library, 29 branches sub-branches and community libraries, a braille library, 14 braille mobile service points and seven braille deposit stations, 31 re-settlement colony libraries and reading rooms, two hospital libraries, a prisoners library in central Jail and a network of mobile service stations serving 81 areas and 21 deposit stations in Delhi.

Raja Rammohun Roy Library Foundation, Calcutta a non-statutory autonomous body, supports and promotes library services in general and public services in particular in cooperation with states/UTs and other voluntary agencies in the field. Under the Delivery of Books and Newspapers (Public Libraries) Act, 1954, four libraries are entitled to receive a copy of every book published in India.



and magazine published in the country. These are National Library, Calcutta, Central Library, Bombay, Connemara Public Library, Madras, and Delhi Public Library, Delhi

### **Anthropological Survey of India**

Anthropological Survey of India, Calcutta is a research organisation under Department of Culture. Since its inception in 1945, it carries out researches on bio-cultural aspects of Indian population particularly on contemporary problems being faced by tribes and weaker sections. It conducts exploratory surveys to unearth, preserve and study ancient human remains. It generates and disseminates bio-cultural aspects of Indian populations through its anthropological museums and other media

### **Rashtriya Manav Sangrahalaya**

Rashtriya Manav Sangrahalaya (RMS), Bhopal, is conceived as an institution dedicated to depict the integrated story of humankind highlighting human biological and cultural evolution with a special reference to India. RMS is completely anthropological oriented institution, with a focus on three major topics (i) human evolution and variation, (ii) life and society in prehistoric times, and (iii) patterns of culture

### **National Research Laboratory for Conservation of Cultural Property (NRLC)**

NRLC, Lucknow, a premier institution of its kind in Asia, conducts fundamental research for development of better techniques for conservation of objects of art, archaeology, ethnology, etc. It provides technical advice to museums, archaeology departments, archives and other institutions having objects of cultural property. Two regional laboratories have been set up at Mysore and Calcutta

### **Centre for Cultural Resources and Training**

*Centre for Cultural Resources and Training (CCRT)* was set up in 1979 as an autonomous

organisation fully financed by the Government. The Centre had taken over the scheme "Propagation of Culture" which was being implemented by University of Delhi from 1970 onwards. An important component of training under this arrangement is creating an awareness amongst students and teachers of environmental pollution problems and their role in conservation and preservation of natural and cultural heritage.

### **Indira Gandhi National Centre for Art**

The Centre launched on 19 November 1983 will comprise a number of halls including a symphony concert hall, a national theatre, two museums, building for cultural archives focusing attention on the rich and varied oral traditions of Asia, a reference library, a fully automated and integrated computerised system for national information system and data bank on arts, humanities and social sciences and a research and publication wing. Once completed, the centre will be the biggest and the largest cultural complex in the world. The academic programmes of the centre are conceived as interlocked programme of sub-institutions like Indira Kala Nidhi, Indira Gandhi Kala Kosa, Indira Gandhi Janpad Sampada.

### **National Council for Culture**

It was set up on 19 September 1983 by the Government for coordination of activities of institutions of arts, archaeology, anthropology, archives, museums and for providing guidelines for future plans and programmes of various institutions.

### **Press Information Bureau**

It is the central agency of the Government of India to disseminate information on its policies, decisions, programmes and activities. The main functions of the Bureau are to put out information on Government policies, programmes and activities, obtain feedback on how these are received and to apprise the Government of Public reaction as published in the news and editorial columns of English and Indian language newspapers. The Bureau also advises the Government on

information policy PIB arranges photo coverage of government activities. The Bureau is the implementing agency for exchange of delegation of journalists between India and foreign countries under cultural exchange programmes and protocols.

The Bureau has a network of eight regional offices at Bombay, Madras, Chandigarh, Calcutta, Lucknow, Guwahati, Bhopal and Hyderabad, 27 branch offices/branch-cum-information centres and two information centres, most of which are linked with the headquarters by teleprinter. The two information centres are at Aizawl and Port Blair.

### Press Trust of India

Press Trust of India (PTI) was set up on 27 August 1947, as a non-profit sharing cooperatives of newspapers, with a mandate to provide economical, efficient and unbiased news service to all its subscribers without discrimination. It took the Associated Press of India and the 'Indian operations' of the Reuters news agency. It began functioning from 1 February 1949. A network of 136 bureaux in the country and 11 bureaux and about 30 stringers abroad, and arrangements with several transnational and national news agencies make up the backbone of this service.

### United News of India

UNI was registered as a company on 10 November 1959 and began its new operations from 21 March, 1961. It is now one of the largest news agencies in Asia with over 100 news bureaux in India and abroad. UNI also provides news service to subscribers in four gull countries, Singapore and Mauritius. In May 1982 the agency launched a full-fledged Indian language news service, *Univarta*. A National Photo Service was also started in September 1987. In July 1986, TV wing of the news agency was started which provides news features, clips and documentaries for Doordarshan and other organisations.

### Press Council of India

Press Council is a statutory body established under the Press Council Act, 1975, charged with

the primary responsibility 'to preserve the freedom of the press' and 'to maintain and improve standards of newspapers and news agencies in India'. It is composed mainly of representatives from the newspapers who are charged with the responsibility of regulating the conduct of their brethren. The Council has the power to consider complaints *suo moto*, in addition to enquiring into complaints brought before it.

### Publication Division

The Division was set up as a part of the Home Department in January 1941 and was known as the foreign branch of the Bureau of Public Information. In 1943 it was transferred to the Department of Information and Broadcasting and was redesignated as the Publication Division in 1944. The aims of the Division are (1) to disseminate information about the country's development in various fields, (2) to facilitate national integration by promoting greater awareness and understanding among the people of different regions adhering to different faiths and beliefs and (3) to stimulate interest in and to generate appreciation of and respect for the variegated pattern of life and culture in India.

The Division publishes 20 journals. The Division instituted Bharatendu Harishchandra Award in 1983. The award is given to Indian writers every year to encourage original and creative writings in Hindi on various disciplines of mass communication viz. print and electronic media, journalism, etc.

### Central Board of Film Certification

The Board set up under the Cinematograph Act, 1952 consists of a chairman and minimum of 12 and a maximum of 23 non-official members all appointed by Government. The Board functions with headquarters at Bombay and six regional offices at Bangalore, Bombay, Calcutta, Hyderabad, Madras and Thiruvananthapuram. The regional offices are assisted in the examination of films by Advisory Panels which include eminent educationists, art critics, journalists, social workers, psychologists, etc. Films can be publicly

exhibited in India only after they have been certified by the Central Board of Film Certification (CBFC).

Film Certification Appellate Tribunal (FCAT), constituted in March 1984, hears appeals against the decision of the Central Board of Film Certification. The headquarters of the Tribunal is at New Delhi.

### Films Division

It is the largest national agency devoted to the production and distribution of documentaries and news magazines. The Division was set up in 1948 to revive the production of newsreels and documentary films. It produces news magazines, documentaries and 16 mm feature films for rural audience in regional languages. It also produces cartoon films and educational-cum-instructional films for agriculture, defence, family welfare and other departments of the Government.

### National Film Development Corporation

NFDC is the Central agency to promote good cinema in the country. It was set up on 11 April 1980 with the amalgamation of the erstwhile Film Finance Corporation and Indian Motion Picture Export Corporation. The primary aim of the Corporation is to plan, promote and organise the integrated development of the country's film industry. NFDC's chief functions include (a) giving loans for production of feature, films and documentaries, (b) financing cent per cent projects to be directed by eminent personalities in the field, (c) co-producing and co-financing films with renowned foreign film producers and (e) co-production with Doordarshan.

NFDC acts as a canalising agency for import of foreign films. The films brought by MPEAA/ SOVEXPORT/NRIs and private Indian citizens in the film market are canalised through the Corporation. NFDC itself imports foreign films and distributes them throughout India. It exports Indian films. NFDC's subtitling centres is at Vashi, Bombay.

### Directorate of Film Festivals

It was set up in 1973 under the Ministry of Information and Broadcasting to help promote good cinema and Indian films in the country and abroad. Functions of the Directorate are to organise : (a) international film festivals ; (b) national film festivals ; (c) film weeks under cultural exchange, and (d) participation in international festivals abroad. It also gives away National Film Awards and organises special film programmes.

### National Film Archive of India

Established in February 1964 as a media unit of Ministry of Information and Broadcasting, the primary objective of National Film Archive is to acquire and preserve the heritage of national cinema and the best of world cinema.

With headquarters at Pune, NFAI has at present three regional offices functioning at Bangalore, Calcutta and Trivandrum.

### Indian Council for Cultural Relations (ICCR)

The ICCR was established and formerly inaugurated in April, 1950 with Maulana Azad, the first Education Minister of India, as the founder president. The objectives defined in the Memorandum of Association were as follows:

(i) to establish, revive and strengthen cultural relations and mutual understanding between India and other countries.

(ii) to promote cultural exchanges with other countries.

(iii) to adopt all other measures as may be required to further its objectives.

The president of the ICCR is appointed by the president of India for a term of three years. Its constitution names four authorities of the council: (i) the general assembly with 64 members; (ii) the governing body, (iii) the finance committee and (iv) any other committee which the president, the general assembly or the governing body may set up.

The headquarters of the ICCR are at New Delhi. The governing body is empowered to:

minate the fellows of the council upto 30 eminent persons with a record of distinguished service in the cause of international understanding through the promotion of closer cultural relations between India and other countries. The ICCR's other activities to promote cultural ties are exchange of visitors and cultural delegations, exhibitions, seminars and conferences, student welfare, presentation of books, musical instruments and objects of art. Other cultural institutions in India are Children's Society UGC, NCERT, NBT, National Educational Resource Centre, Indian Institute of Mass Communication.

### **Children's Film Society of India**

It was established in 1955 as an autonomous body with the objective to provide the children and the young people films with clean and healthy entertainment. It is engaged in production, acquisition distribution and exhibition of such films. It organises week-long festivals in several districts. It also organises children film festivals in India and participates in film festivals abroad. First International Children's Film Festivals was organised in Bombay in 1979.

### **University Grants Commission**

UGC was established in 1956 under an Act of Parliament to take measures for promotion and co-ordination of university education and determination and maintenance of standards in teaching, examination and research in universities. To fulfil its objectives, the Commission can enquire among other things into financial needs of universities; allocate and disburse grants to them; establish and maintain common services and facilities; recommend measures for improvement of university education and give advice on allocation of grants, and establishment of new universities.

### **National Council of Educational Research and Training (NCERT)**

It was established in 1961 in New Delhi and acts as the principal agency for academic advice to the Ministry of Human Resource Development in matters pertaining to formulation and

implementation of policies and programmes for qualitative improvement of school education. It works in close collaboration with education departments, of states, universities and other institutions having interest in school education. There are 17 field advisers of NCERT in Ahmedabad, Allahabad, Bangalore, Bhopal, Bhubaneswar, Calcutta, Chandigarh, Guwahati, Hyderabad, Jaipur, Madras, Patna, Shillong, Pune, Shimla, Srinagar and Trivandrum.

NCERT develops instructional material for childhood education and training packages for teachers, educators and supervisory personnel. The Council awards scholarships yearly to students on the basis of national talent search examination conducted at the end of class X, for studies up to Ph. D level in science, mathematics, social sciences or professional courses like engineering and medicine.

### **National Book Trust**

NBT, an autonomous organisation set up in 1957, fosters bookmindedness among people of different ages and walks of life. It produces books in Hindi, English and 11 regional languages under well-defined series. Besides publications, NBT organises book fairs and festivals at international and regional level.

### **National Educational Resource Centre**

The Raja Rammohan Roy National Educational Resource Centre was established in 1972 as a part of the Book Promotion Division with a view to promoting writing and production of indigenous university level books. It aims at serving authors and publishers of university level books as well as research workers in book production by way of intensive and extensive reference work, documentation services and its various book promotional activities.

### **Indian Council for Cultural Relations (ICCR)**

With the achievement of Independence in 1947, India was inevitably drawn into the

mainstream of international activities. While internally the government and leaders of independent India grappled with problems of economic, social and cultural development, India began to play a leading role abroad for the achievement of international peace and amity among all nations. The move to revive cultural ties with the world outside was in fact an integral part of the nationalist movement and the struggle for Independence.

Maulana Azad, the first Education Minister of India, was the Founder-President of the Indian Council for Cultural Relations.

The ICCR was established and formally inaugurated in April 1950. Its objectives, as defined in the Memorandum of Association, were as follows :

- to establish, revive and strengthen cultural relations and mutual understanding between India and other countries;
- to promote cultural exchanges with other countries;
- to adopt all other measures as may be required to further its objectives.

**Constitution of the ICCR :** The Constitution of the Council provides for six office bearers, namely a President three Vice-Presidents, a Financial Adviser and a Director-General. The

President is appointed by the President of India for a term of three years. The three Vice-Presidents are elected by the General Assembly of the Council and hold office for three years. The Financial Adviser of the Ministry of External Affairs is the Financial Adviser of the Council. The Director General, who is the chief executive officer of the council, is appointed by the Governing Body for a period and on terms and conditions determined by the governing Body. The Constitution names four authorities of the Council, namely (1) the General Assembly (2) the Governing Body (3) The Finance Committee and (4) any other Committee which the President, the General Assembly or the governing Body may set up.

The General Assembly has a total membership of 64, including representatives of Indian universities, eminent artistes and representatives of scientific, educational and cultural organizations in India. The Council functions as an autonomous organization administratively attached to the Ministry of External Affairs.

**Headquarters and Regional Offices :** The Council's Headquarters are at New Delhi. The Regional Offices of the Council are located at Bombay, Calcutta, Lucknow, Chandigarh, Madras, Trivandrum and Bangalore. ■■

# INDIAN FESTIVALS

## Raksha Bandhan

Shravan, the sacred thread changing ceremony, and Raksha Bandhan are celebrated on the full moon day of the month *Shravan* and are often regarded as different names for one festival. However, it is not true. Shravan is a specifically Brahmin festival referred to in the sacred Sanskrit text as Rishi Tarpan or Upa Karma. It is actually an ancient Vedic festival and even today it is regarded as important in Bengal, Orissa, Southern India, Gujarat and some other states.

The more popular of the two festivals, however, is Raksha Bandhan.

The Raksha Bandhan is said to have its origin in a tale in the *Puranas* which is about a fierce battle that raged between the gods and demons. It appeared that the demons would defeat the gods. Indra, the supreme deity, was much worried. His wife Indrani consoled him. The next day was the full moon night of the month of *Shravan*. Indrani had a charm prepared as prescribed by the sacred texts and tied it on the wrist

er husband. Finally, in the battle field, the gods  
rged victorious with the invincible power of  
charm. It appears that the Raksha Bandhan  
day is derived from this belief. It is held that if  
lord made according to the prescriptions of  
oly texts is tied round the wrist of a person  
e full moon day of *Shravan*, it will ensure him  
d health, success and happiness for the year  
follows. Till the girls have tied the chord on  
brother's wrists neither will break their fast.

On Raksha Bandhan day, Brahmins and  
its also tie *rakhis* round the wrists of their  
ons and in return receive offerings from them.  
ome parts of the country, it is customary to  
figures on house walls and worship them  
offerings of vermillion or *kheer*. The imprints  
alms are also put on either side of the en-  
ce and *rakhis* are stuck on them. Raksha  
dhan is also celebrated in slightly different form  
ifferent areas in India by a variety of name-  
hi, Rakhri and Saluno.

### Buddha Purnima

Buddha Purnima is the most important fes-  
of the Buddhists. It is celebrated on the full  
n day of the month of *Vaisakh* (April-May)  
this day, the founder of their faith, Lord Bud-  
was born, attained enlightenment and attained  
ana when he died. This strange, three-fold  
cidence, gives Buddha Purnima its unique sig-  
ance. On this day the Buddhists bathe and  
r only white clothes. They gather in their  
ras for worship and give alms to monks. Many  
nd the entire day at the *vihara* listening to dis-  
ses on the life and teachings of the Buddha.

Different Buddhist countries have different  
s of celebrating this great day. In Sri Lanka  
celebrations are very similar to Diwali. All  
es are illuminated and even the poorest lights  
east one oil-lamp. In Japan, Buddhists have  
d the eighth of April as the Buddha's birthday.  
this day, they make replicas of shrines with  
ng flowers and place a small idol of the Buddha  
hem. They bathe and consecrate these idols  
g great reverence. In Burma, the Buddhists set

a day apart every month in honour of the Buddha.  
Since the Buddha attained enlightenment sitting  
under a Bodhi tree, special care is taken in water-  
ing and attending Bodhi trees.

### Bihu

Bihu is the most important festival of the  
people of Assam. The Assamese observe three  
Bihus: the Bohag Bihu which is celebrated in Mid-  
April, the Magh Bihu which is celebrated in mid-  
January and, the Kati Bihu which is celebrated in  
mid-October. The three are connected with the  
spring, winter and autumn seasons respectively.  
Of these, the Bohag Bihu is considered the most  
important. Next in importance is the Magh Bihu  
and lastly the Kati Bihu.

The Bohag Bihu symbolises the beginning  
of agricultural operations. It is a spring, new year  
and agricultural festival all rolled into one. The  
people sing, dance and play games and enjoy  
themselves. This is why it is also called Rangoli  
Bihu (Bihu of Merriment). *Bohag* is the first month  
of the Assamese calendar and *Chot* the last.  
Preparation for the formal ceremonies begin on  
the last date of *Chot* (Visuva Samkranti day) and  
extend up to a few days in the month of *Bohag*.

Games and sports are a part of the Bihu  
celebrations. A special game is *kanyuj* (egg-fight-  
ing) which is played by two people each hitting  
the egg the other holds. Cowrie shell games and  
other chesslike games are usually preferred by  
the women. Outdoor games like *dhop* (a ball  
game) and *hau* (a form of kabaddi) are also popu-  
lar. However, the performance of special Bihu  
songs and dances distinguishes the Bohag Bihu  
from the other Bihus and for that matter, from the  
other festivals of Assam.

The various tribal groups of Assam, too,  
have festivals akin to Bihu at or around this time  
which they celebrate according to their respective  
customs and rites. Among these are the Bodo-  
Kacharis' Boisagu, the Rabhas' Bakhu, and the  
Mishings' Ali-a: I-gang.

The Magh Bihu is a harvest festival  
celebrated in winter when the crops have been

harvested. Feasting forms the main feature of this Bihu and so it is also called the *Bhogali Bihu* (Bihu of Enjoyment). It is also connected with fire rites, the lighting of bonfires being another important part of its observance. The *Kali Bihu* is a one-day celebration. It is held on the last day of the month of *Ahin* (October-November), when the paddy crop has yet to mature and granaries are almost empty. So it is called the *Kangali Bihu* (poor Bihu). There is no feasting. People worship the *tulsi* plant in the courtyard.

## Onam

Onam is a festival of flowers, a spring festival of Kerala which falls on Shraavan day in the month of Shraavan or *Bhadon* (August-September). There is a legend associated with this festival. It is believed that in ancient times a generous *asura* king Mahabali ruled Kerala. Being jealous of him, Vishnu, one of the Hindu Trinity disguised as a Brahmin boy, Vamana, went to him and asked for three steps of land. Having got the permission, Vishnu immediately began to grow in size till he was as big as the universe. He took two giant strides and covered the earth, the heavens and the nether world for his (Vishnu's) third step the principled Mahabali offered his head, and Vamana immediately did so, pushing Mahabali down far, far down till he almost reached the nether world. Before disappearing Mahabali got Vishnu's permission to come to the earth once-year to see his people. The celebration of Onam is a tribute to Mahabali's sacrifice. Kerala celebrates his annual home-coming.

Onam celebrations which last ten days begin with a colourful reception to King Mahabali. Earthen mounds representing Mahabali and Vishnu are placed in the dung-plastered courtyards and beautifully decorated with flowers. After traditional prayers and worship the head of the household presents new clothes to the family and friends. This is followed by a feast. Then it is time for dancing and sports. Certain dances such as *Kaikottikkali*, and particular games were traditionally associated with Onam. The most exciting of

these is the *Aranmula* boat race. Onam is celebrated by Hindus, Muslims and Christians and symbolises the hopes and aspirations of all Malayalis.

## Eid

Eid is the main Muslim festival. Two Eids are celebrated in the year. The first, *Eid-ul-Fitar* is celebrated after the Ramzan fasting on the first day of "Shavval" month of Hijri year. The second Eid is celebrated on the tenth day of "Zilhij". It is known as *Eid-ul-Zuha*.

**Eid-ul-Fitar :** During the month of Ramzan, the fasts are observed regularly and end on the day of the Eid. Ramzan is the ninth month of the Hizri year. The Islamic year begins on seeing the moon. The fasts also are begun on seeing the moon and they end again on seeing the moon. Fasting is supposed to burn out one's sins. The *Roza* or the fast is observed from sunrise to sunset. One is not allowed even a drop of water during this period. People recite Holy Quran regularly during this period. They are forbidden to smoke. They are required to make a special effort to settle their differences and refrain from quarrelling, talking ill of others, and from lying, cheating, or using bad language. On sunset in the evening and before the *Magrib* Nawaz one must eat something. As soon as the *Azan* of *Magrib* is heard, everyone breaks his fast. This is called *iftar*. For the early morning meal, known as the *sehri*, generally eatables cooked in milk are preferred and tea or water drunk. No sooner is the *sehri* over than the call to prayer is heard from the minarets of mosques. Thus, the period of fasting begins. After the five daily prayers, all present beg God's forgiveness for their sins, freedom from disease, starvation, debt and misfortunes. Then they embrace each other wishing 'Ed Mubarak.'

The word "Fitar" in *Eid-ul-fitar* means a donation which is made on happy and thankful conclusion of the Ramzan fasts. This donation consists of about 1.75 kg. of wheat or 3.5 kg. of barley.

**Eid-ul-Zuha:** *Eid-ul-zuha* is also known as *Eid-e-qabir* and *Baqar Eid*. A cow or a bull is sacrificed this day in the name of God. In Arabic

"Eid-ul-zuha" means Eid of sacrifice. It is celebrated on the tenth day of Zilhiz. Haj is performed a day before this festival. Eid-ul-zuha is celebrated for a very special reason. On that day God put to test His faithful prophet Ibrahim. He (God) directed him to sacrifice his most cherished thing in the name of God. Ibrahim thought about it and sacrificed a ram. But he heard God's voice again. He thought once again about the thing he loved most. It occurred to him that he loved his son Ismail most. When he told it to Ismail, he willingly offered himself for sacrifice in the name of God. But he begged his father to get himself blindfolded lest he waver from his love of God out of affection for his son. Ibrahim, therefore, blindfolded himself and applied the knife on his son's throat. When he removed the blindfold he found that he had sacrificed a ram in place of his son. Then God told him that he had passed the test. Eid-ul-zuha is celebrated from then onwards. Eid Prayer is offered on Eid-ul-zuha before taking breakfast. After the Namaz, breakfast is taken along with the sacrificial meal if a sacrifice is arranged at home.

Obviously, Eid-ul-zuha and Eid-ul-fitar are celebrated almost in the same manner. The only difference is that on Eid-ul-zuha, a sacrifice is offered whereas on Eid-ul-fitar, the fitra donation is made.

## Muharram

It is the name of the first months of the Islamic or Hijri year. Muharram is observed on the tenth day of the first Muslim month in commemoration of the great tragedy in the history of Islam namely the prophet's grandson Hussain's martyrdom. The historic battle between the forces of truth justice and tolerance led by Hussain and falsehood injustice and evil led by Yazid, started on the third day of Muharram on the plain of Karbala in Iraq. In this battle Imam Hussain with his 72 followers got martyrdom. Hussain was martyred on the tenth day of Muharram. He had been surrounded on the plains of karbala by the forces of Yazid from the first day of Muharram. This is the reason why all comforts are given up

at the beginning of this month

The most important programme is the making of a "Tazia". Tamurlang was the first who ordered a Tazia and thereafter it became a custom. Tazia means mourning, grieving and crying. No food or water is taken by the mourners from the morning of the tenth day. The last Majlis, called Sham-e-Ghariban, is held at six in the evening, generally in the open where people remember the great sacrifice of Hussain and his followers. Drinking-water outlets (sabils) are opened in the name of Imam Hussain and his followers who were not even allowed to quench their thirst. The custom of Tazia procession does not prevail in any other country. Events of karbala are dramatically staged in Iran and other countries.

There are regional variation in the celebration of this festival. In Kashmir, people stop sleeping on a bed after seeing the Muharram moon. The women do not comb their hair nor indulge in any festivity for thirteen days. Nobody sleeps between the ninth and tenth night. Food is forbidden on these days. The mourning for the martyred concludes on the twentieth day following Muharram after the observance of the "Fortieth Day" (Chaliswan).

## Eid-i-Milad Unnabi

Prophet Muhammad was born on the 12th day of "Rabi-ul-Awwal" in 570 A.D. at Mecca in Arabia. To commemorate the birth of Muhammad, Eid-i-Milad Unnabi is celebrated. This is also known as "Shahre Milad" and "Shahre Mauludunnabi". "Milad-Sharif" is recited on this day. It is a mixed verse and prose compilation of Muhammad's life from birth to death. The verses are sung in chorus by a number of persons and the prose portion is read by a single individual. Since Muhammad was born before sunrise, Milad-Sharif is recited at certain places before the sunrise. At some places processions are also taken out. Fast is observed by many persons and sweets are distributed among friends and children after a prayer (Fatiha) in the name of the prophet.



### Shab-e-Barat

"Shaban" is the eighth month of the Hijri calendar. This festival is celebrated on the 15th day of the month.

According to some people, Muhammad's uncle Amir Hamza was martyred this day and this is a "fatihah" for him. Others believe that the soul of a deceased, visits its former house on this day. Some believe that if someone were to die before Shab-e-Barat he is not included amongst the dead unless his fatiha on Shab-e-Barat is recited. According to a Hadis Prophet Muhammad visited Jannat-ul-Baqi on God's command and vowed against death. It is also said that Muhammad Sahib lost a tooth that day and ate Halwa (a soft sweet dish). Halwa is therefore especially made on Shab-e-Barat.

From the spiritual point of view Shab-e-Barat is a day of worship and sanctity. Special "Nafil Namazes" are offered in the night in addition to the five daily ones. But they are optional. Meals are distributed amongst the poor.

This is considered a night for introspection. Ancestors are remembered on this day and fatiha prayers are offered.

### Meraj Sharif

The Muslims consider the month of "Rajab" very sacred because on the 26th night of this month the event of Meraj Sharif took place. Besides, Hazrat Ali was born on the 27th of Rajab. The literal meaning of Meraj is climbing up the ladder. But in connection with Hazrat Muhammad this word has a special connotation—the visit of Hazrat Muhammad to the paradise or the seventh heaven, coming face to face with the effulgence of God's presence and a dialogue. Muhammad is also said to have brought five daily prayers for the Muslims.

### Ganesh Chaturthi

Ganesh Chaturthi falls on the fourth day of Shukla Paksha in the month of Bhadon (some time in August-September) and marks the end of the monsoon. It is essentially a Maharashtra



throughout the year. On *Mattu Pongal*, bulls are beautifully decorated by their owners and then driven out into the open with money-bags tied around their necks. Anyone who manages to catch the bulls can claim these bags.

### Holi

By the Christian calendar, Holi falls on the full moon day in phagun (February-March). It is among the most important Indian festivals. It is the festival of spring. It marks the change of seasons, the start of summer.

Holi is associated with Lord Shiva and is recreation of his marriage procession. The smearing of faces and drenching clothes with coloured powder and water is done in honour of this deity, as is the singing and dancing to the beat of *mridangas*.

A more famous episode connected with Holi is the encounter between Prahlad, a devotee of God, and his father Hiranyakashyap, a demon-king. Hiranyakashyap dealt out severe punishment on him for his devotion to God but he came out unharmed. Hiranyakashyap had a sister, Holika, who was blessed with special powers—fire could not burn her. He ordered Holika to take Prahlad in her lap and mount a burning pyre. She did so, but Prahlad came out unscathed while Holika was reduced to ashes. It is said that Holi is celebrated and Holi fires lit in remembrance of this miracle.

The celebration and rituals of Holi in some areas are different. In Nandgaon, the village of Krishna's birth and Barsana, Radha's home, women chastise men with sticks and the menfolk have to take the beating with a smile and pretend to enjoy it. In Barmer in Rajasthan they throw stones at each other and in Varanasi at Meerghat the revellers divide themselves into armies and attack each other with staves. The 'battle' is joined on Basant Panchami and fought for two hours every day till Holi when it all ends peacefully—the two armies embrace and daub each other with vermilion powder.

### Navroze

Navroze is the most important festival of the Parsis. It is celebrated on 21 March each year on

the first day of spring. It is considered the Parsi New Year only by one sect of Parsis—the *fastis-b*. All Parsis join in the festivities and enjoy themselves and greet each other and attend the thanksgiving ceremonies at fire Temples.

The origin of this festival, known in Persia as *Aid-i-Now-Ruz*, are not very clear but we know that the friezes of Persepolis, the ruined palace of Achaemenian kings show that the festival was celebrated as far back as the 6th century B.C. when Cyrus and Darius ruled over the great Persian Empire. Firdausi, in his *Shah Nameh*, Book of Kings, dates the festival to the time of King Jamshed, who, it is said, sat on his throne surrounded by courtiers and celebrated his own glory as well as the rejuvenation of nature on the first day of spring. Parsis often refer to this festival as *Jamshedi Navroze*.

### Christmas

The festival of Christmas, celebrating the birth of Christ on December 25, is an important festival of the Christians. Besides Christians, other Indian communities, too, regard Christmas as a season of goodwill, greetings and shopping.

### Janmashtami

The birthday of Lord Krishna, incarnation of Vishnu, is celebrated at midnight on the eighth day (*ashtami*) of the dark fortnight in the month of *Shravana* (July-August) in many parts of India. But in *Bhadra* (August-September) too in the rest of the country.

### Ramanavami

The birth anniversary of Lord Rama in the Hindu month of *Chaitra* (March-April) is celebrated in most of the states.

### Sivaratri

Hindus all over India call it *Mahasivaratri* or the great night of Siva on the fourteenth day of the dark fortnight in the month of *Magha* (January-February).

### Vasant Panchami

The fifth day of the bright half of the month

of Magha (January-February) is allotted for the worship of Saraswati, Goddess of Learning, the day being called Vasant Panchami or Sri Panchami.

### Car Festival of Puri

The *Rath-yatra* or the car (chariot) festival of Jagannath, held at Puri (Orissa) in *Asadh* (June-July) every year, is one of the most well known regions events in India. The images of Jagannath, his brother Balaram and sister Subhadra are taken out in a procession from the temple on three massive four *Dhams* (border shrines) for the Hindus, the other three being Badrinath in the north, Rameswaram in the South and Dwaraka in the west.

### Jwalamukhi Fair

The Jwalamukhi festival is celebrated twice in a year, in April and October, in honour of the Goddess of Volcano. Pilgrims flock to this fair, which is held in the Kangra Valley in Himachal Pradesh. The flame at the site is fed by jets of natural gas originating from the hill side.

### Kumbh Mela

The greatest of India's periodical fairs is the Kumbh festival. There is a legend that the earth was made sacred in four places by contact with the *Kumbh* or the jar of nectar (*Amrit*) which could make a person immortal. These four places are Nasik, Ujjain, Prayag and Haridwar. The Kumbh Mela is celebrated at each of these places every 12 years. The *mela* is not held at all the four places at the same time, but by turns, and thus, we have a Kumbh Mela every three years. As Prayag (Allahabad) is the meeting place (*sangam*) of the Ganga, the Yamuna and the hidden Saraswati, the spot is particularly sacred. It has become the centre of the largest fair, attracting more pilgrims than other places.

### Magha Mela

In the month of *Magha* (January-February) every year, a fair is held during the popular *Magh* festival at the confluence (*sangam*) of the Ganga, the Yamuna and the hidden Saraswati.

### Pushkar Mela

The fair on the banks of the Pushkar lake in Rajasthan (Ajmer) is held in October-November. Pushkar, incidentally, appears to be the only place in India where Brahma is worshipped even now.

### Easter

When Jesus Christ arrived in Jerusa'em, the capital of Judea, the holy city of the High Priest of the temple and the seat of the mighty Roman governor, he wanted to reform the Jewish temple, and openly charged that the priests had converted the temple into a den of thieves. Jesus was arrested and accused of sedition and rebellion before Pontius Pilate, the Roman governor who condemned Jesus to death by crucifixion. Good Friday is the day of mourning because Jesus was crucified on the day. The next day (Saturday) is a quiet day without either mourning or celebration. But the third day, Easter Sunday, is marked by feasting and rejoicing to commemorate the Resurrection of Christ, the victory of good over evil, of life over death.

### Gurupurab

Gurupurab or birth anniversaries of gurus are treated as holy days by Sikhs, but those of the first Guru and the last Guru are celebrated as festivals. The founder of this youngest of Indian religions was Guru Nanak, born in *Kartik* (October-November), 1469 A.D. at Talwandi, near Lahore; he was greatly influenced by Kabir's teachings. Nanak's disciples were called Sikhs (from the Sanskrit word, *shishya* or disciple). Starting with Nanak, Sikhs had 10 gurus. When the tenth, Gobind Singh, had turned the Sikhs into a powerful martial community, he said there would be no further gurus, and gave Sikhs the *Granth*, as their religious book is called. Gobind Singh, born in Patna gave the Sikhs the five K's. In 1699 at Anandpur in Punjab, he formed the *Khalsa* or the Elect, and added 'Singh' (lion) after each name.

### Other Festivals

New Year's Day is fixed at different times in different religions even though the same calendar

might be used in these areas

The Gregorian or Julian Calendar was introduced in the country by the British. After the independence the government felt the need for a calendar based on solar calculations and so, in 1957, it adopted the Saka reckoning with some changes as the National Calendar. The saka year now starts with the first day of the month of *Chaitra* corresponding to March 22 (or 21 in a leap year). The Vikram era was known as *Samvat*, meaning a year till about the ninth century, and it is possible that it was named after Vikramaditya in a later development. The Vikram year starts with *Kartik* (October-November).

In Andhra Pradesh, New Year's day is called *Ugadi*, beginning of the *yuga*. It comes in March-April. In Punjab, the year starts with the first of *Vaishakh*, which coincides with the ripening of the Ravi harvest *Baishakhi* (April 13). 'Nav Varsha' in Bengal starts on the first of *Vaisakh*, and the people have their own era the 'Bengali san'. The Kashmiri *saptarshi* year starts with the vernal

equinox but the lamaistic New Year, called *Molud* in Ladakh, is celebrated in December. The Assamese celebrate their New Year, *Goru* and *Rangoli Bihu*, as a cattle festival, when the animals are given jaggery and other delicacies. The *Kollum* era, which is said to have started from the day *Parsuram* reclaimed Kerala from the sea, followed mainly by Malayalees: *Vishu* (New Year Day) is celebrated with the *Kani* or preparation of an auspicious omen the preceding night so that it is the first 'lucky' thing one looks at in the morning.

### Sair-e-Gulfaroshan

This unique festival of flowers is celebrated in September-October jointly by Hindus and Muslims at Mehrauli, some 13 km from Delhi. Large palm-leaf fans decorated with flowers from gardens and pendants are taken out in a procession with fire-dancers at the head. All the participants, Hindus and Muslims, jointly go to the Dargah of Khwaja Bakhtiar Kaki Sahib, sacred spot for Muslims and then to the Hindu Jog Maya temple.

## PLACES AND MONUMENTS

**Ajanta Caves** : Ajanta lies in the Sahyadri mountain range in the north-east of Bombay, 50 kilometres south of the railway station of Jalgaon and 60 kilometres north of Ellora. It was first noticed by Gresby (Bombay Army) in 1819. In rocky slopes of a river valley, there are 29 caves, ranging in date from the second century B.C. right up to the seventh century A.D. Magnificent mural paintings have survived here. The paintings depict the life of Buddha, but the scenes themselves are set in a later period, at a time when a courtly culture was beginning to be established even here, in the uplands. All the splendour of this courtly culture has been captured by the artists in these colourful paintings. It consists of Buddhist (Hinayana and Mahayana) chaityas (chapels) and monks' cells with barrel shaped ceilings with stone

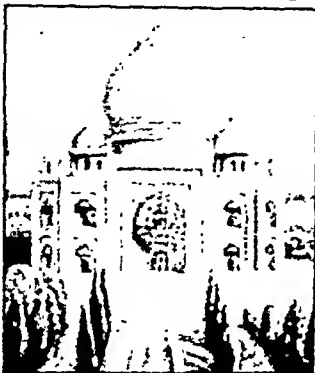
ribs, 9 galleries, columns, sun-windows, etc. There are beautiful carvings on doorways, windows, capitals, pedestals, and exquisite wall paintings (combining frescoes and tempera) illustrating Buddha's life and teachings, representatives of his devotees and followers and incidents and stories from his life, historical, domestic and religious scenes, animals, hunting, exteriors of houses, interiors, processions, streets, bejewelled women etc.

**Abu** : Mount Abu in southern Rajasthan rises steeply from the sun-baked plains and has, from time immemorial, been a cool place of retreat. It is well-known for its crown of Dilwara temples built by the Jains. The temple devoted to Adinath was built at the beginning of the eleventh century, the one dedicated to Neminath, the largest and most beautiful of the temples here.

1230. The white marble, the wealth of finely detailed sculptures and the delightful features of the expansive ceiling of its dome all contribute to the appearance of airiness and light of this temple.

**Agra :** Agra was the capital of the Great Mughals. The immense fortress (*Agra Fort*), a bridge-

head, lies in a bend of the river Yamuna. The fortress was built by the Great Mughal Akbar in 1566. Its magnificent interior structures, however, are the work of his successors. Aurangzeb held



his father Shah Jahan imprisoned here. From his prison, Shah Jahan was able to look across the bend of the river to the *Taj Mahal*, the mausoleum that he had started to build in 1632 for his beloved wife, Arjmand Banu Begum one of whose titles was Mumtaz Mahal. It took 20 years to be completed and is considered by architectural connoisseurs to be the most beautiful building in the world. The chief architecture is said to have been Ustad Isa (an Iranian) and an Italian, Voerrones is said to have prepared plans and estimates. Made of pure white marble from Jaipur, the mausoleum stands in the middle of a building on a square platform. Its beautifully proportioned dome ends in a pointed spin, and a marble trellis work surrounds the 2 tombs, also made of white marble (the real graves being below them in the crypt underneath). All round the building at a considerable height from floor level, are inlaid on the white marble walls, in black marble and in large Nashk Talik script, verses from the *Quran* : so skillfully and with such a true sense of perspective and mathematical accuracy has this been done that the upper reaches of the characters are in perfect proportion and size compared with the lower. The

entire structure stands in its own large garden with cypress trees flanking the approach way (which leads from a massive and lofty entrance gateway of red sandstone) through the whole length of which there is a water course with fountains

Only 35 kilometres from Agra lies *Fatehpur Sikri*, the town which Akbar had built before the gates of Agra around 1570. He intended to make this his new capital, but had to abandon this plan around 1590, due to the shortage of water. In Fatehpur Sikri the visitor thus encounters a town that was, as it were, cast in one mould and whose structure was not changed subsequently

**Aihole, Badami, Pattadakal :** These three centres of the Chalukya Empire in the south-western uplands are remarkable for their sculpture and architecture from the period between the sixth and eighth century A.D. the period during which the Chalukya capital of Vatapi (Badami) has all but perished; all that remains are the cave temples dedicated to Shiva and Vishnu. These are quite distinct for their particularly beautiful sixth century A.D. sculptures. Only a few decades later the Ladkhan temple in Aihole was built. Dedicated to Shiva it is a low, compact temple with pillars of massive proportions and a ceiling comprised of great stone slabs. The vivacious couples on the outer walls appear, in contrast, elegant and full of life.

During the course of the eighth century the Chalukyas moved the centre of their building activities to Pattadakal. The temples here have spires (*shikhara*) towering over the sanctum similar to those of the temples of North India. The temples blend North and South Indian architectural styles. Early Chalukya architecture served as a model for the later Pallava style which influenced in turn, the later Chalukya style (Pattadakal).

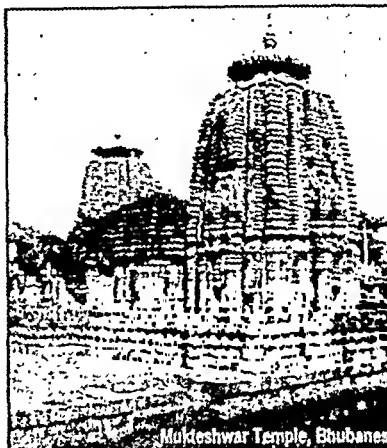
**Akalot :** It lies 40 kilometres south-east of Solapur, in Maharashtra. Many pilgrims have been drawn to Akalot in modern times due to the fact that the Swami of Akalot, a famous holy man and later the ascetic Gajanan Maharaj, made their home here. The Shrivapuri temple here, a twentieth

century monument, owes its existence to the fame of this place of pilgrimage and its saints.

**Belur, Halebid, Somnathpur :** Under the patronage of the Hoysala dynasty who ruled in Kamataka from the beginning of the twelfth century to the early years of the fourteenth century, three splendid temples were built, each possessing an abundance of beautiful sculptures. The oldest of these three temples, built in 1117 and dedicated to the god Vishnu, stands in Belur (about 150 kilometres west of Bangalore).

The huge temple in nearby Halebid, constructed around 1150, may be devoted to the god Shiva, but many of the other gods of the Hindu pantheon also appear among the sculptures covering the outer walls. The ornamental work here is quite fascinating. Some 100 kilometres south-east of Halebid, near Mysore, stands the temple of Somnathpur, built in 1168 and dedicated to Vishnu. All the stylistic elements of Hoysala architecture have been employed here with great subtlety. The sculptor and architect Janakacharya, one of the few Indian craftsmen whose name has come down to us, was the originator of this work of art. He is also supposed to have had a hand in the work in the temples in Belur and Halebid. His work has never been surpassed by that of any Indian artist since.

**Bhubaneswar, Konarak, Puri :** Bhubaneswar in the plains by the river Mahanadi, was an important religious centre under the rule of many dynasties. Hundreds of temples once stood in this city, but today only a few still exist. Of the surviving ones, we may mention only the three most beautiful. The oldest of these is the Mukteshwar temple which was built around the mid-ninth century A.D. It is a very low temple with the temple spire only ten metres high, but is a real treasure of Indian art with sculptures of exquisite detail and enchanting vitality. The Rajarani temple, dating from the eleventh century A.D. is likewise as modest in size, but is also covered with particularly imaginative sculptures. Charming nymphs under trees, snake gods rising up in coils,



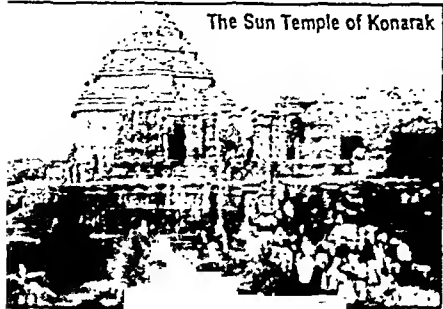
Mukteshwar Temple, Bhubaneswar

small replicas of the temple spire, one upon the other, forming a decorative chain on the temple facade,—all merge into one dynamic structure.

The largest of the three is the Lingaraj temple, the immense spire of which rises some 45 metres high. Its central idol is Shiva as Tribhuvaneshwara, "Lord of the Three Worlds". The temple was built at a time (eleventh century) when the kings were intent on demonstrating their sovereignty by means of such royal temples. The temple in Puri is dedicated to Vishnu in his incarnation as Jagannatha ("Lord of the World") and is likewise a monument of majestic proportions. It lies on the seacoast, some 50 kilometres south of Bhubaneswar. The shrine in Puri is ancient, and the idols worshipped there—Jagannath, his brother Balabhadra and his sister Subhadra—are carved in wooden figures, originally tribal gods that have since been inducted into the Hindu pantheon. The large temple is even today an important centre of pilgrimage. It was built towards the end of the 12th century—after Anantavarman Chodaganga of Kalinga had conquered first central Orissa and then the whole of India's southeastern coast.

Perhaps the boldest manifestation of the policy of demonstrating ritual sovereignty is, however, to be found in Konarak on the seacoast some 30 kilometres north of Puri. King Narasimha

The Sun Temple of Konarak



who ruled Orissa and large areas of neighbouring Bengal for several decades in the thirteenth century, erected here a large and most unusual temple. It has a square foundation with a pyramidal-shaped roof rising almost 70 metres high, devoted to the sun god (Surya), the temple represents his chariot. There are giant wheels on each side of the temple and enormous statues of horses in front of it. The outer walls are covered with friezes of relief sculptures and, hidden in niches, are figures reminiscent of the couples in Khajuraho. If one climbs over the rubble of a collapsed outer wall all onto the top of the temple roof, one comes face to face with larger-than-life size figures of women musicians beating on huge drums. Their figures appear slight from below; only as one stands before them, one can appreciate their true size.

**Bijapur :** Bijapur had its most glorious period under the Adil Shah dynasty during the sixteenth and seventeenth century. It was then one of India's most important cities. Nowadays it is only a small district town of Karnataka, halfway between Bombay and Bangalore. Its impressive monuments are a testimony to its former greatness. The most famous of these is *Gol Gumbaz*, the mausoleum of Muhammad Adil Shah and the largest domed structure in the world (about 60 metres high and with a square foundation, 60x60 metres). It was completed, according to the inscription, in the year 1659. The wide gallery that runs along the walls inside the dome is called "the whispering gallery", and it is indeed amazing to be able to hear even the ticking of a watch on the

other side of the gallery at a distance of about 37 metres.

**Delhi :** Delhi has a strategically important location : here, a range of hills closes in on the river Yamuna and thus separates the plains of the Punjab (named after its five rivers) from those of the Doab ("two rivers"). The present urban areas of Old and New Delhi are dotted with the ruins of earlier capitals. To the south of the city the towering triumphal column of the *Qutb Minar* erected by Qutbuddin Aibak, the first (Sultan of Delhi) marks the site of India's earliest Islamic capital. Qutbuddin died in 1210 when the column had but four storeys. His successors added more storeys until the column reached its present height of about 72 metres. About eight kilometres further east stands the huge fortress of Tughluqabad built around 1320. At its gate stands the massive mausoleum of Ghiyasuddin Tughlaq which also contains the tomb of his son and successor Muhammad bin Tughlaq. It is a compact, polygonal building of red sandstone crowned by a beautiful white marble dome.

Somewhat further to the east is *Suraj Kund*, a basin laid out by the Sultan as an amphitheatre and once a place of a holy pool dedicated to the sun god. The exact date of this structure is unknown but it certainly belongs to the time before the Islamic conquest. Standing on the edge of Suraj Kund today is a hotel which, in terms of its location and architecture, must be one of India's most beautiful places.

The Afghan sultans of the Lodi dynasty who were rulers of Delhi from the mid-fifteenth century left impressive traces of their style of architecture before the Great Mughals came. Although they changed the face of Delhi their spaciousness of this city was not altered. The tomb of the Lodi sultans is a fine example of their style. It is located in the west of the city. In the heart of New Delhi, where stands the massive *Qutb Minar*, the *Qutb* is a monument to the Islamic era. It is a tall, tapering tower with a series of balconies and a large, ornate dome. The *Qutb* is a masterpiece of Islamic architecture and is a must-see for anyone visiting Delhi.



Humayan was forced to spend several years in exile in Persia while the Afghan Sher Shah ruled in Delhi. East of New Delhi stand the buildings of the *Purana Qila* which bears witness to the interregnum of Sher Shah. In the north of the city lies the capital of the Great Mughals, today called Old Delhi or Shahjahanabad (after Sher Shah, the most important of its founders). Shah Jahan built the Red



Fort (Lal Qila) between 1639 and 1648 as well as the *Jama Masjid*, one of the world's largest and most beautiful mosques which was completed in 1650. Shah Jahan was so proud of his new capital that he had inscribed in the Red Fort "If there is a Paradise on Earth, then it is here, then it is here then it is here!" Shah Jahan was dethroned and imprisoned by his son Aurangzeb who, apart from the delicate Pearl Mosque (*Moti Masjid*) in the Red Fort, contributed little in the field of architecture. A Spartan military leader, Aurangzeb invested the treasures of the realm in his vast campaigns of conquest. It was his express order that no mausoleum should be erected in his memory and he lies buried under the open sky at the roadside near Aurangabad.

After the capital of British India was transferred from Calcutta to Delhi in 1911, present-day New Delhi was built up between the years 1920 and 1930 as a demonstration of imperial splendour. The colossal domed structure of the Presidential Palace (*Rashtrapati Bhavan*), the former residence of the British viceroy, and the enormous wings (North Block, South Block) which now house the Ministries of the Government of India and the Prime Minister's Office, are monumental expressions of British rule over India—at a

time when this rule was soon coming to its end.

**Elephanta** : It is an island in the harbour of Bombay. The Portuguese gave it this name, the Indian name being Gharapuri.

Dating from the 7th century A.D., the cave temple here, dedicated to Shiva, contains the most impressive reliefs in India. In the centre of the south wall, there is a bust (about six metres high) of the three-headed Shiva (Maheshamurti) which shows him as creator, preserver and destroyer. His middle face expresses tranquillity and majesty, the head on the left has a terrifying face surrounded by snakes and the lovely face on the right has female features and contemplates a lotus blossom. In one relief, a figure of the god over three metres high, rushes at the demon Andhaka, his face contorted with rage. In another, he is half-man, half-woman (Ardhanarishwar). Whilst the slender male half leans nonchalantly against a gigantic bull, the broad-hipped female half gracefully holds up a mirror. All around this mythical creature, a symbol of the harmonious balance of the sexes, reverently stand the gods of the Hindu pantheon.

There are also several scenes showing Shiva with his wife Parvati symbolizing the harmony of the sexes. Parvati, who is elsewhere in India represented in her fearsome form as the demon-killing Durga or Kali, is portrayed as the loving wife of Shiva in Elephanta. Another dramatic spiritual conflict which influenced these tremendous sculptures at Elephanta was the spiritual confrontation with Buddhism. The meditating Shiva, the subject of another impressive relief here, resembles Buddha.

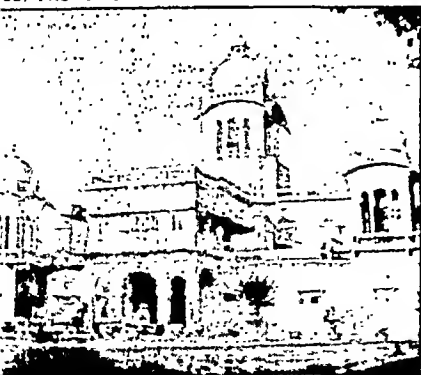
**Ellora** : It is located in the north-west of Aurangabad. It was once the capital of the Rashtrakuta dynasty, which reached the height of its power in the 8th century A.D. Their king Krishna ordered several caves to be cut out of hard rock. He also got the masons to carve a whole temple out of one piece by cutting into the rock from above to a depth of up to 90 metres. This Kailash temple rests on the backs of the elephants which

round its base. It is dedicated to the god Shiva and his wife Parvati who sit enthroned on Mount Kailasha, the mountain which the ten-headed demon Ravana then tries to shake. Ellora was, in fact, a sacred place before the Rashtrakutas came to power. There are Buddhist caves here which date back to the 5th century A.D. In Ellora, cave No. 19 (7th century A.D.) is the most impressive.

**Girnar :** Near the town of Junagadh, on the Kathiawar peninsula in Gujarat, lies Mount Girnar, one of India's holy places since ancient times. Famous rulers have left their mark here.

On a large boulder in route to the temples, the following three famous inscriptions are recorded: the edict of Emperor Ashoka (c. 250 B.C.), a Sanskrit inscription (150 B.C.) of the conqueror Chandragupta Maurya and an inscription of King Chandragupta (454 A.D.). The shrine on the mountain consists of sixteen Jaina temples, the most important one dedicated to Neminath, the twenty-fourth Tirthankar (of the twenty-four) mythological "founders" ("four-builders"). Most of the temples date from the 12th and 13th centuries, the golden age of Jaina architecture. The temple in Mount Abu devoted to Neminath also belongs to this period.

**Golconda :** It is a magnificent fortress close to Hyderabad in Andhra Pradesh. From the early 16th century till the late 17th century, the Qutb Shahs ruled over the central uplands from this place. The ruins of the town and citadel are enormous.



in size - one of the largest fortifications of the world. Not far from this fortified town stand the mausoleums of its rulers. These elegant monuments owe much to Persian architecture, but they also have elements of the Hindu architectural style. The oldest one belongs to the founder of the dynasty, Quli Qutb Shah, and the largest one to Muhammad Quli Qutb Shah, who reigned from 1580 to 1612. This was the period when Golconda was at the height of its power after the fall of Vijayanagar and before the conquest of the South by the Great Mughals.

**Hyderabad :** It is today one of India's largest industrial towns and is also the capital of the State of Andhra Pradesh. The town was founded by Sultan Quli Qutb Shah of Golconda at the height of his power. It was in 1591 that he had the town's landmark built, the *Char Minar* which dominates Hyderabad's skyline even today. A gateway building, it has magnificent towers at its four corners, each 55 metres high. After the annexation of Golconda by the Great Mughal Aurangzeb, Hyderabad became an outpost of the Mughal empire. When the empire declined in the course of the 18th century, the Grand Vizier Nizam-ul-Mulk Asaf Jah made the town his capital and founded his own dynasty here. His successors, the Nizams of Hyderabad, survived British colonial rule and the town remained an enclave of Islamic court culture in South India.

**Jaisalmer :** It was founded by the Rajput prince Jaisal in 1156 and was once an important station on the trading route from the Indus to North and central India. Situated nowadays only 100 kilometres from the Pakistani border, the town is at a "dead end" and is for this reason visited much less than other places in Rajasthan although it represents the culture and architecture of this region in quite a unique way.

**Kanchipuram :** It is 65 kilometres west of Madras. It was the capital of the Pallava dynasty. The kings of this dynasty built over a hundred temples here. The most important of these is the Kailashnath Temple built by King Sathappan in the 8th century.

the beginning of the 8th century A.D. Dating from a much later period, the town's largest temple was built by king Krishnadevaraya of Vijayanagar and was dedicated to Ekambareshwar (Shiva).

**Khajuraho :** It is a site in Madhya Pradesh lying 200 kilometres south-west of Allahabad, in the hilly country at the southern periphery of the Ganges plains. It was once the capital of the Chandella Rajputs who erected a series of charming temples here between 950 and 1050 A.D. The idea of the temple as a sculpture is particularly manifests in the largest of all the temples here, the one devoted to Kandariya Mahadev (Shivaji). Both the interior and the exterior of the temples are decorated with a host of beautiful female figures and with scenes of couples making love which suggest esoteric rites that included sexual practices. The reddish, soft sandstone of the temples contributes to the impression of warmth and animation exuded by each of these figures

**Kusum Sarovar ("flower pond") :** It is an artificial pond near the memorial of Raja Suraj Mal who was killed by Mughal soldiers on a hunting trip in 1793. It is on the route between Govardhan and Radha Kund, two places connected with the life of Krishna. Bharatpur, the capital of the Jat prince Suraj Mal, lies twenty kilometres to the west of this place. The Jats were cowherds and farmers of this area who banded together and resisted the Great Mughals. Suraj Mal's descendants erected a memorial stone to him, beside which they built a spacious hall. The paintings of the ceiling of this hall depict scenes from the life of Krishna as well as the life of Suraj Mal who is shown riding with his routine, etc.

**Madurai :** Lying some 500 kilometres south-east of Madras, in the valley of the river Vaigai, it was once the capital of the Pandya dynasty. Later on it became the residence of a governor (Nayak) of the Vijayanagar Empire. When that empire decayed, the Nayaks set up their own kingdom. Around the mid seventeenth century, under Tirumala Nayak, Madurai became an important centre of South Indian architecture. The palace of



Tirumala Nayak, with its arcades and high granite pillars (12 metres), shows traces of European influence. Tirumala Nayak also built large parts of the huge temple complex devoted to Minakshi ("the fish-eyed"). Meenakshi was originally a South Indian mother goddess who only later on became identified with Parvati, Shiva's wife. Even today the marriage of Shiva and Parvati is the principal theme of the annual temple festival.

The temple area, enclosed by a high wall with four colossal gate towers (*gopuram*), is like a town by itself. Located within the walls are two temples dedicated to Minakshi and Sundareswarar (Shiva), respectively.

**Mahabalipuram :** It is also called Mamallapuram. It was formerly an important centre of the South Indian Pallava dynasty. About 50 kilometres south of Madras, it stands at a beautiful sea-shore. The most important builder of monuments here was king Narasimhavarman I who was also called Mahamalla ("the Great Wrestler"). During the seventh century, however, Mahabalipuram was to become a glorious city of temples with gorgeous sculptures which rival those of Elephanta.

**Natanda :** 50 Kilometres southeast of Patna lies the largest Buddhist monastery complex of Nalanda in Bihar, which was a centre of Mahayana Buddhism from the fifth to the twelfth century. Founded by a king of the Gupta dynasty in late medieval times when Buddhism in other parts of India was already declining. Many of the temple



with 4 imposing gateways of architectural merit and surface ornamentation inlay. Akbar designed the mausoleum for himself and commenced building it but it was completed by his son Jahangir in 1612. It shows Hindu influence with its 5 storeys rising in terraces, lower ones of red sandstone and topmost of white marble, its beautiful arabesque tracery, Hindu carving and Buddhist form may well represent composite faith of Akbar whose body lies in a high cenotaph chamber in the middle of the lowest storey under a simple marble tomb stone

**Alai Darwaza :** It is the southern entrance to the Qutb complex, added by Ala-ud-din in 1311. Its decorations are in a mixture of red sandstone and marble.

**Almora :** It is an ancient mountain town in Kumaon (Uttar Pradesh) capital of Chandel rajas who ruled over Kumaon till defeated by the British. It is situated on a ridge and is the springboard for many interesting places such as Jalna, Binsar, Jogeshwar and Pindari glacier.

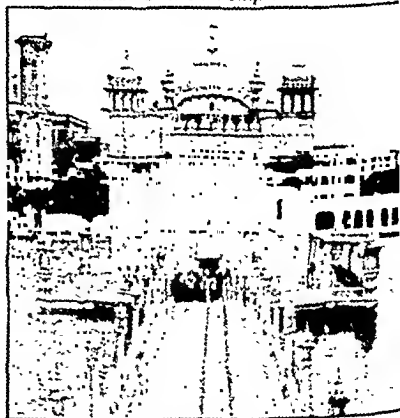
**Amaravati Stupas :** Built around 150-250 A.D. as a result of the Buddhist settlement on the south bank of Krishna, it showed for the first time, Buddha as a divinity, receiving worship. The sculptures have been beautifully and idealistically treated. First excavated in about 1797, its remains had fallen to pieces, most of the pieces having been removed through the centuries for building purposes. The *stupa* must have covered about 600 sq m. Its surfaces are carved in the Bharhut style but some features of the Mathura and Gandhara sculptures have also been adopted, execution of flowers, foliage, scrolls, friezes, medallions, etc. is very fine, exhibiting great vitality of design, exquisite linear rhythm and beauty not excelled afterwards. Some marble images are carved in the round.

**Amar Nath :** It is a celebrated cave which is visited by thousand of pilgrims from all over India on the full moon day of Sawan. Situated at a height of 12,729 feet above sea-level, it lies in a long glacial gorge far away up the Liddar Valley in

Kashmir. In the southeast corner, of the cave the holy *ice-lingam*, which is self formed and believed to increase and decrease in size with the waxing and waning of the moon. The cave looked upon as the abode of Lord Shiva and consort Parvati who, during their wanderings, took a fancy for it and stayed on. In course of time knowledge of its existence was lost; only at the beginning of the 19th century it was discovered by a Muslim shepherd, Malik of Batkoot village, 10 miles from Pahalgam, whose descendants now act as guide and porters of his pilgrimage and also get one-third of all the offering made in the cave.

**Amritsar :** It was founded in about 1575 A.D. by the fourth Guru of Sikhs Guru Ram Das and originally called Ram Das Pur. The fifth Guru Arjun Dev (1531-1606) gave it its present name because of the holy tank Amritsagar (sacred ambrosial tank), dug out during his days. The holy *Granth* was compiled during this time and placed in the Golden Temple in 1604. It is a sacred place of pilgrimage for Sikhs and Hindus alike and also a great seat of learning. It is the headquarters of the highest religious body of the Sikhs, Shiromani Gurudwara Prabandhak Committee (founded 1920). It is also a high commercial centre, rich in literary and cultural associations.

**Amritsar Golden Temple :** Ram Das, 41



ikh Guru. was granted a piece of circular land by kbar (1577) where there was a tank. he restored calling it Amritsagar (ocean of immortality); started building a temple there; completed by Arjun, 5th Guru. It has four doorways signifying that Sikh worship is open to all

**Anandpur Sahib :** It is a small town, picturesque, located in an area of low hills, 80 km from Chandigarh. It was founded in 1644 by the 10th Sikh Guru, Tegh Bahadur, on land bought from the Raja of Bilaspur. It has a special place in Sikh history, as the 10th and last Guru Govind Singh, came here when 8 years old (1674) and spent 25 years here. In 1699 he inaugurated the Khanda (pure) brotherhood, a military organisation, here with a handful of Sikh saint soldiers. When the Baisakhi festival takes place (about March), thousands of Sikh devotees come to the Sikh shrine here where religious functions and community meetings are held and a huge procession is taken out.

**Arai din Ka Jhompra :** It is a mosque at Ajmer said to have been built by Qutb-ud-din Aibak and Alauddin. It is a large structure, with pillars, arches and domes reminiscent of the Jain temple at Mt. Abu.

**Auroville :** 'Auroville' is meant to be a universal town in Pondicherry where people of all countries can live together in peace and progressive harmony, above all creeds, all politics and all nationalities. To symbolize the coming together of nations, earth from 124 countries was ceremoniously poured into the lotus shaped foundation stone. Surrounding this lotus are ornamental gardens around which there are nine settlements with poetic names like 'Hope', 'Peace', 'Repose', 'Promise' and 'Aspiration'. Eventually, there will be 20,000 residents living in Auroville. The city has four zones : residential, cultural, international (with pavilions from different nations of the world) and industrial.

**Ayodhya :** Place of great antiquity (called Ayodhya) and one of the 7 *saptapurnis* (sacred cities) of the Hindus, it is a town situated on the Ghaghra (Ganges) river in Uttar Pradesh. It was founded by

Ikshvaku, first king of solar dynasty or North Kosala dynasty. It continued as the capital of the great line of solar kings among whom was Ramachandra (hero of the *Ramayana*) who was born and cremated here. The Jain tirthankars, Adinath, Rishabh, and Ajita were born here and so it is sacred to the Jains as well. It was celebrated Buddhist centre and the famous Chinese monk, Fa Hien, who travelled in India from A.D. 400 to 411 visited the city of Sha-Chi which historians have identified with Saket.

**Badrinath :** Located in Garhwal (Uttar Pradesh), on the banks of Alaknanda, it is one of the most sacred Hindu temples. It is dedicated to Vishnu. Two hot water springs issue (from the mountainside) just below the temple. The *rawal* (priest) must always be a Namboodri Brahmana from Kerala.

**Bagh Caves :** In Bagh, a village on the Baghini (in Madhya Pradesh), there are nine sandstone Buddhist caves with beautiful frescoes and sculptured stone work (date of origin and identity of executors unknown). Originally, it had extensive and important wall paintings, ceiling, columns and walls were covered with frescoes of great beauty, subject being secular and religious but all depicting some aspect of Buddhist life and ritual. It is badly damaged. Chemical and other tests assign them (tentatively) to 6th century A.D. but they may have predated the Ajanta frescoes to which they are similar.

**Bangla Sahib :** It is a famous Sikh shrine in New Delhi, dedicated to the memory of the eighth Sikh Guru Har Kishan (1656-1664) who stayed here. It was the residence of Bungalow of Raja Jai Singh, hence the name of Bangla Sahib.

**Belur Math :** Established by Swami Vivekananda in January 1899 at Belur 8 km north of Calcutta on the Ganga it is the head quarters of the Ramakrishna Mission and the chief centre of the Ramakrishna order of monks from where all the missionary, philanthropic and spiritual activities are organised. The trustees look after the spiritual training and growth of the monks of the Order.

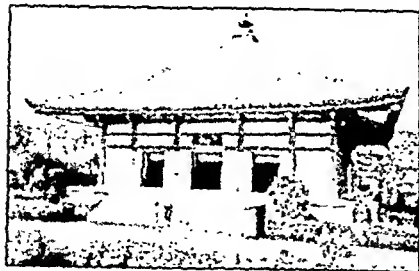
; the monks are trained to help society upwards, not to bury themselves in caves and forests, to live, as Ramakrishna taught, in the world for the betterment of humanity and the alleviation of suffering.

**Bharhut** : It is a village south-west of Allahabad where exist ruins of a great Buddhist stupa (250-200 B.C.); it was discovered in 1873 by Cunningham. It depicts scenes from the Jatakas. The carving on the remains is full of variety, charm and richness, handling of motifs, flowers, animals, human beings and scenes of court life is masterly and beautiful.

**Bhitargaon** : It has probably the oldest extant carved brick-work temple in north India (in Kanpur district). It is placed about 4th century A.D. Another opinion places it three centuries later. Outer ornamentation is of terracotta sculpture with many brahmanical subjects; upper portions of walls have rectangular panels alternating with sculptured plasters. It is in a state of great dispair.

**Bodh Gaya** : Bodh Gaya is a famous pilgrimage centre of Buddhists all over the world. It is about 10 Km. south of the city of Gaya in Bihar. Here, under the famous Bodhi tree, Gautama received *buddhi* or enlightenment. King Ashoka built a monastery here.

**Botanical Garden (Calcutta)** : On 1st January, 1963, the Indian Botanic Garden, Calcutta, was handed over by the West Bengal government to the Government of India; since that date the Garden has been under the Botanical Survey of India. It owes its foundation to the energy and foresight of Lt. Col. Robert Kyd. It is not known



when the Great Banyan Tree was brought to its present site; there are some indications that the tree was already in existence when the temple was initiated by Kyd in 1787. Until some years ago the original trunk was standing. At present there are about 1000 aerial roots supporting the branches, and the diameter of the area covered by the branches of the tree is over 300 feet.

**Brindavan Gardens (Krishnarajpet)** : It is about 20 km. from Mysore. The gardens are laid out in terraces below a reservoir formed by a dam across river Kaveri. There are flower-beds, cascades and fountains all over. The gardens are illuminated at night and visited by hundreds of people.

**Chidambaram** : An ancient temple situated about 150 miles south of Madras, considered to be holy by all religions. It is believed to be the site of the akasa linga (the invisible or ethereal linga) of Shiva; tradition holds that it is associated with great bhaktas (devotees) and famous Hindu saints. It has been a noted centre from ancient times. The university of Annamalai, established in 1929, is located near the town. Its temples are beautiful examples of Dravidian architecture, sculpture and stonework. Amongst them, the most celebrated being that dedicated to Shiva as Nataraja, lord of the cosmic dance. It dates from the 6th century A.D.

**Church of Bom Jesus** : It is located in Old Goa. The body of St. Francis Xavier, who discovered the island of Sancian (on his way from India to China) was brought to Goa in Portugal in 1557. In the 16th century; the body is still intact. It is kept in a casket (a work of art) in the church. The exposition of the body takes place periodically and is an important event for the Indian and foreign Roman Catholics. The church is therefore, great sanctity and is a shrine for pilgrims.

**Dera Baba Nanak** : It is located on the banks of the Ravi, about 55 km. from Lahore. Baba Nanak, Founder of Sikhism, came to Dera with his family. When 70, he died at Kartarpur (now in Pakistan). Both Muslims and

med the body. When the sheet covering it was d, only flowers were found there. The flowers were divided between the two. The one who entombed their portion the latter created a shrine and built a samadhi over the urn containing the flowers. About 1639, due to snoring of the Ravi, on banks of which the shrine was located, the shrine was taken to Dera Baba Nanak where another shrine was built (at the site where Nanak had been buried). The present gurudwara was built during the time of Maharaja Ranjeet Singh who decorated part of it with silver leaf. A *chola* (cloak) said to be that of Nanak (now in private hands) is enshrined here.

**Dwaraka :** A small town on the north-west tip of the Kathiawar (Sourashtra) peninsula in Rajkot district of Gujarat, the name Dwaraka derived from the Sanskrit word *dvara* meaning 'door'. The town was the 'Gateway of India' in ancient times, an entrepot for ships engaged in overseas trade with Egypt, Arabia and Sopotamia. At present its importance is due to the magnificent temple of Dwarkadhish dedicated to Krishna. The *nejamandir*, as the sanctum is known, is assignable to the 12-13th centuries A.D. The rest of the temple including the five-ayed *mahamandapa* was built in the 15-16th century A.D. Excavations have yielded spectacular evidence of the existence of four temples before the present temple of Dwarka-dhish of Dwarkamandir came to be built in the 12th century and enlarged in the 15-16th century.

**Gaya :** It is a town in Bihar inhabited by Magas in ancient times who were worshippers of the sun, fire and naga (snake), magicians and sorcerers and mentioned in the *Ramayana*, *habharata* and *Puranas*. According to a legend the place takes its name from Gaya, a demon who was so holy that anyone who even looked at him was sure to find a place in heaven. He asked him to make any request but not to leave from the spot, to which he agreed but demanded that the place be named after him; to this they agreed, declaring the place to be sacred. Hindus

visit the Vishnu temple at Gaya for performing *shraddha* ceremonies as Vishnu has deemed that those who do so will reach heaven along with their ancestors.

**Gompas of Ladakh :** A monastery in Ladakh is called Gompa. Gompas are usually the highest buildings in the villages and some of them like the Takse Gompa are several storeys high. They all contain exclusive images of the Buddha and some of the other gods of the Buddhist pantheon. The most famous and by all accounts the oldest and the wealthiest monastery in Ladakh is the Hemis Gompa.

**Gulmarg :** West of Srinagar (capital of J & K) about 1,000 m. higher up it is a forest clad summer and winter resort of uncommon beauty. Its golf course is among the finest in the world. It offers opportunity for trekking, riding, skating, skiing, etc. A 6.4 km. walk takes one to snow-clad Khilanmarg and above it is frozen lake of Alapathar.

**Guru Ka Bagh :** A small shrine near Amritsar was erected to commemorate the visit of Guru Arjun.

**Gurukul Kangri :** Gurukul Kangri is a seat of Hindu learning at Haridwar in Uttar Pradesh. It was set up by Arya Samajists in 1902 and imparts education through the medium of Sanskrit. It now enjoys the status of a university.

**Gwalior :** An important princely state of Central India, now a district of Madhya Pradesh, Gwalior is famous for its fort, palaces and temples. It is a centre of several handicrafts and other industries, also the seat and the last resting place of Mian Tansen, famous court singer of Emperor Akbar. Also to be seen are the tombs of Muhammad Ghaus, Jami Masjid, Gujri Mahal, Chaturbhuj Mandir, Mansingh Man Mandir, Sas-Bahu Mandir, Teli Mandir, Scindia School and Maharaj Mahal.

**Hardwar :** Hardwar-Aun, that is Vishnu's door is one of the *septapuri* or seven (sacred) cities of Hindus. It is situated at the foot of Shivaliks (lowest range of Himalayas) where Ganga emerges from the mountains and so, it is also



awe-inspiring spectacle  
Jwala Mukhi Temple : About 30  
of Kangra, it is a famous temple pl  
located on the crest of hill. Inside are  
or so natural flames which Hindus  
vine, emerging out of the mouth of  
of Shiva)  
neighbour : It is a city rich in cul  
because

Jaipur : It is a city rich in culture and called the 'Pink City' because of its pinkish walls. Built in 1728 by Maharaja Jai Singh (II), designed by a British architect, Vidyadhar Chakravarty who synthesized Jain and Mughal influences. Place of interest - The City Palace, Janlar Mahal, Amber Palace (on the outskirts) and Sheesh Mahal.

**Kaifsa-Manasarovara**  
the centre of a fertile valley  
stands Mount Kailasa, and  
lies Manasarovara holy lake  
are held sacred by Hindu  
Bhavan, Sha

Kala Bhavan, Calcutta, is engaged in study and research in painting, sculpture etc. and confers degrees, and also brings out a magazine, *Kafakshetra*, monthly.

Kafakshetra, M  
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Kodalkana

Nadu. There is a lake with fishing, boating and a five-mile walk around it. The place offers beautiful walks and picnic spots. There are waterfalls-famous being Fairy, Glen and Silver Cascade. There are gardens and parks, a variety of trees and an admirable climate. The observatory is well known. Established in 1899, it is one of the most important institutions in India for solar physics, meteorology and allied subjects.

**Kosala :** It was an ancient kingdom established by the Aryans in the eastern part of North India. It was a reputed empire from which Rama was exiled and over which he eventually ruled.

**Kosambi :** It is a prehistoric city, 50 km from Allahabad on the left bank of Yamuna. Vatsa who ruled here in the 6th century B.C., was a contemporary of Gautama Buddha and who came here periodically. He preached his sermons and stayed at Ghasitarama monastery. It was an important political and Buddhist centre till the beginning of 1st century A.D. A pillar here bears an inscription of Samudra Gupta's victory over this area. It was devastated by the Huna invasion.

**Kurukshetra :** It is a famous battle field where according to the epic Mahabharata, the legendary war between the Kurus and the Pandavas was fought. It is a great pilgrimage centre of the Hindus.

**Kusinagar :** It is located in Uttar Pradesh. Gautama Buddha came here on his last journey with his beloved disciple, Ananda. He chose this site for achieving *mahaparinirvana*. It became a great place of pilgrimage and worship for Buddhists. Many *chailiyas* (chapels) and *viharas* (monasteries) were built here 3 centuries later. Ashoka built a pillar, a temple and a stupa on the sacred spot of *mahaparinirvana*, the ruins of which were seen by Hsuen Tsang in 7th century A.D. It was rediscovered by Carville (of the Archaeological Department) in 1876, who uncovered the stupa and an over 6 m. long recumbent stone statue of the dying Buddha (in lion posture). It is now a place of worship and pilgrimage for Buddhists. There is also the site of a school for study of

*Dhammapada* and a small Chinese temple which has an image of the Buddha.

**Lucknow :** It is situated on River Gomti. According to one legend, Rama's brother Lakshmana, founded it. It rose in importance in Akbar's time; became a thriving centre of trade in Jahangir's Muhammad Sharif, Subedar of Avadh, built magnificent buildings, gardens, particularly, one called *Bostan-i-Dostan* (garden of friends) in 1630-31. It has been famous for its handicrafts - *cl* an embroidery, gold and silver (thread) embroidery (*kamdani, salma, sitara, zardozi, gota* etc.) ivory carving, silver and *bidri* work, clay models and toys, perfumes and calico printing. In addition it also makes beautiful costume jewellery now.

**Lumbini :** It is a place near Kapilavastu where Lord Buddha was born about 565 B.C. Now called Rumminderi, the place is in the Nepal Terai.

**Mahabodhi Temple :** Also called Temple of the Great Enlightenment, it is located at Bodhi-Gaya.

**Marble Rocks :** About 20 km south west of Jabalpur in M.P. the famous marble rocks are in a gorge of the Narmada. Motor boats and rowing boats wind up the river to the base where it cascades down in a mighty surge to the rocks below, sending up clouds of spray at a spot called Dhuan Dhar (cloud stream). Not far is the old temple of Madanpur surrounded by 64 statues of *yoginis* (women ascetics). On the road to the Jabalpur is Madan Mahal, ancient fortress of Gond kings, built on the crest of a great boulder.

**Mathura :** One of the seven sacred cities of the Hindus. Mathura is situated on the Yamuna, north-west of Agra. It is the site of concentration of painted greyware pottery of proto-historical times. In the *Mahabharata* Mathura is mentioned as being the capital of Krishna. It was here that Krishna was born and spent his childhood. His youth and is therefore, held to be sacred by the Hindus. It was a great and old centre of Hindu worship for centuries. Buddhist images (undated) were produced in large numbers, particularly when Mathura became a

capital of the Kushan kings. Large primitive figures in red mathura sandstone and votive tablets with Jain images are also produced.

**Moti Masjid (Agra) :** Built by Shah Jahan (1654), it is an elegant mosque in white marble. It is inside Agra fort. Beautifully proportioned with colonnades, cloisters and arched entrances ; its dome is perfectly designed.

**Mukteshwar :** It is in Kumaon (Uttar Pradesh). It is noted for its fruits, verdure, flowers (particularly rhododendrons) and views of the Himalayan snow ranges. It is also well-known for the Veterinary Research Institute, one of the best of its kind in India.

**Mussaman Burj :** It is a tower in Agra fort, built in white marble by Shah Jahan. It is also known as Jasmine Tower because of the flowers in delicate mosaic and brilliant gilding with which it is decorated. It is outstanding for inlay and marble filigree work, chaste and refined taste and beautiful execution. Aurangzeb interned Shah Jahan here and from here he could see, across the river Yamuna, the Taj Mahal where his beloved consort, Mumtaz Mahal, was buried.

**Nagarjunakonda :** It is a site of pre-historic importance in district Guntur (Andhra Pradesh) at the bank of Krishna. In the later half of the 3rd millennium B.C. (when Harappan culture flourished in north India) pastoral people lived here, made use of polished stone axes, and other tools. Excavated in the twenties of this century this region yielded up pottery, some with sophisticated shapes, also came to light Buddhist structures—a stupa, two chaityas, several viharas (monasteries) — Brahmanical temple and many secular structures—including an amphitheatre, established during Ikshvaku times (3rd and 4th centuries) and sculptures in the Amaravati style. As the site was to be submerged in the fifties to make a dam on the river, the valley was excavated thoroughly and it was revealed that the site had been in continuous occupation from early Stone and Neolithic times till after the period of the Ikshvakus. To preserve some of the outstanding specimens of sculpture,

they were removed to museums. The place came known as the hill of Nagarjuna in the century A.D.

**Nakhoda Mosque :** It is the largest mosque in Calcutta. Its architecture is of oriental design. There is a majestic dome with 2 minarets.

**Nathdwara Temple :** It is about 50 miles north-east of Udaipur. Located in a beautiful spot near river Banas it is a lovely marble temple.

**Nootacamund :** It is a mountain resort in Nilgiri hills on a plateau at an altitude of 2,286 feet. A tree-bordered lake offers fishing and boating. There is a botanical garden, fine golf course, opportunity for mountain climbing, particularly Doddabetta, Snowdon, Elk Hill and Cair Hill.

**Panipat :** Panipat is situated near Delhi in Haryana. It is a famous place for three historic battles took place here—first battle of Panipat fought on April 21, 1526 between Delhi Emperor Ibrahim Lodhi and Mughal invader Babar led to the establishment of Mughal rule ; second battle fought between Akbar and Hemu, Hindu general of Afghan King Adil Shah Sur enabled Akbar to recover the throne of his ancestors ; third battle of Panipat was fought between Afghan invader Ahmad Abdali and the Marathas who came as protectors of Mughal Emperor Shah Alam II ; the defeat of the Marathas vanquished their dream of establishing their empire on the ruins of the Mughal empire.

**Pataliputra (Modern Patna) :** It was the capital of Magadha and the Mauryan empire and the site of the third council of Buddhism, convened by Ashoka to deal with heresy and orthodoxy.

**Pinjore Garden :** It is one of the oldest Mughal gardens in northern India, some 19 km from Chandigarh. It is a small replica of Shalimar gardens of Srinagar, laid out by Firdaus Khan, foster brother of Aurangzeb; beautiful setting with lower range of Himalayas as backdrop.

**Plassey :** It is a village north of Calcutta where in 1757 Clive defeated a large force of Nawab of Bengal, primarily through a conspiracy with the Nawab's generals, often said to mark the

beginning of the British conquest of India.

**Pushkar Fair :** An important Hindu bathing festival, accompanied with a big fair, there is the only temple in India dedicated to the God Brahma (the creator) where he is said to have performed a yagna. It is believed that without bathing in the sacred water of the lake, important places of pilgrimage cannot be acquired.

**Rajgir :** Situated some distance south-east of Patna in beautiful natural surroundings it is a place of pilgrimage for Buddhists and Jains. It was the residence of Buddha during his sojourn in Rajagriha. There is an ancient chaitya called Maniyar Math, Tapodanadi or hot mineral springs, Saptaparni and other beautiful caves and Jain temples on the hill tops. It was the site of the first Buddhist Council; it is also connected with episodes in Hindu epics.

**Rameshwaram Temple :** It is one of the most outstanding and stupendous South Indian temples in the Dravidian (Pandyas) style of temple architecture. It is situated on an island near Adam's bridge (which separates India and Sri Lanka). It has two shrines within 3 concentric walls and 4 sides; the pillared corridors which surround the shrines extend to more than 1000 metres in length, the pillars are huge blocks of granite, richly carved and beautifully proportioned, stand close to each other along long corridors, due to the immense length of which, the perspective dwindles to a mere pinpoint of light in the distance, the whole effect being one of remarkable grandeur. The corridors are believed to mark the place where Rama (the hero of the Ramayana) performed his first act of worship after his rescue of Sita from Ravana's Lanka and the temple is, therefore, hallowed by his (legendary) association with the site.

**Ranakpur Temples :** About 140 km north-west of Udaipur, set in a picturesque location on the western slopes of Aravalli hills, these are celebrated Jain temples. There are 29 halls exhibiting architectural grace, variety, sculpture and decoration of ceilings and 420 pillars (all more or less dissimilar) beautifully executed.

**St. Paul's Cathedral Calcutta :** It is the first Anglican cathedral built in India (1847). It is gothic in style.

**Salarjung Museum :** Nawab Mir Yousuf Ali Khan Salarjung III was the owner of the largest collection of art objects in the world, from the fantastic collection emerged the Salarjung Museum at Hyderabad. A salient feature of the Museum is its international character, and collections pertaining to each country are arranged in one or more rooms. Salarjung Library has an extensive collection of oriental manuscripts in Urdu, Arabic and Persian.

**St. Thomas Mount, Madras :** It is one of the most important historic Christian shrines in India; traditional site of martyrdom of Apostle Thomas who probably first brought Christianity to India (A.D. 45). He went to South India after A.D. 51 and was killed by hostile Brahmins. It is a place of pilgrimage for Christians who come from abroad as well. Of two churches here (built during Portuguese times) one, on Little Mount, is where St. Thomas used to pray and one is at the site where he was killed.

**Sanchi Stupa :** About 30 km from Bhopal, it is an enormous domed structure standing on a low stone hill, for the preservation of the relics of the Buddha. It was rediscovered in 1818 by some English military officers. The most remarkable features are the massive railing at the base at a distance of over 3 m with magnificent decoration representing stones from the Jatakas, the birth, enlightenment, first sermon and death of the Buddha; historical events connected with Ashoka; some events associated with his pilgrimages; village scenes, palace scenes, forest scenes, ancient musical instruments with people playing them etc. The stone carved with the most beautiful carving of a high technical excellence, some with depth of relief, some in bas-relief and some in the round.

**Samath :** It is an ancient archaeological site northeast of Varanasi (Uttar Pradesh). It is one of the eight great places of Buddhist pilgrimage as it was here in the Deer Park that Buddha preached

his first sermon and founded the first Buddhist Sangha (order) of monks, the two-fold act being known as *dharma-Chakra-pravartana*. During the Kushan period (A.D. 81) Sarnath became a centre of Hinayana Buddhism.

**Sravasti :** It is an ancient site on the border between the districts of Gonda and Bahraich (Uttar Pradesh); it is also known as Sahat Mehet. It was the second capital of the Kingdom of Kosala. The place is sacred to both Buddhists and jains.

**Shantiniketan :** It is in district Birbhum, West Bengal. Rabindranath Tagore first established a school at Shantiniketan and later on, in 1901 he made it into a public trust. He laid the foundation here of Vishva Bharati (World University) in 1918. Sylvian Levi, a French, became its first visiting Professor. It became a Central University in 1951.

**Siddi Sayyid Mosque, Ahmedabad :** (A.D. 1515). Its delicately carved and perforated stone screens, particularly of central windows are unequalled for artistry : sensitivity and skill with which tree, foliage and floral designs have been conventionalised and treated to fill the entire window space is an exquisite specimen of tracery and perforated carving in stone.

**Sis Ganj :** It is a famous shrine of Sikhs in Chandni Chowk, Delhi. It commemorates the martyrdom of Guru Tegh Bahadur, Ninth Guru of Sikhs, which took place on 11th november, 1675. The structure was constructed in 1930.

**Somnath :** It is the name of famous temple (on sea coast of Gujarat peninsula) in which there was a celebrated *linga* (one of 12 in India) said to have been an idol brought to India from the Kaaba of Mecca before Prophet Muhammad started his destruction of the idols of Mecca.

**Sravana Belagola :** It is a village in District Hasan (Karnataka) famous for its monolithic nude Jain statue carved by an unknown sculptor (c. A.D. 1883), said to be that of Gomata (second son of Rishabha, first Jain tirthankar) who became an ascetic and renowned Jain saint. Known as Bahubali and Gomateshvara.

**Srinagar :** It is the capital of the State of



Jammu and Kashmir set in a beautiful valley framed in noble chinar trees and poplars, on the Dal Lake and River Jhelum known for centuries. Pravarapura after King Pravarasena II (6th century A.D.), the Mughal Emperors made in it beautiful gardens in Mughal style rising in terraces : beauty-Shalimar, Nishat Bagh, Naseem Bagh and Chashma Shahi (laid out by Shah Jahan). Tw. hills—Takht-i-Suleman on the crest of which stand the temple of Shankaracharya (18th century) and Hari Parbat are famous.

**Srirangapatnam :** About 16 Km. from Mysore it is the old capital of Karnataka kings situated on a small island in river Kaveri. Its old fortress was the stronghold of Sultan Tipu from whom it was captured by the British at the Battle of Srirangapatnam (1799). At the eastern end of the island is Darya Daulat Bagh. There are also a big mosque and a huge temple of Ranganatha.

**Sun Temple, Modhera :** It is in Gujarat. There exists a richly carved temple complex, built during the reign of Bhimdev (1026-27). It represents superb craftsmanship of Gujarati architects.

**Sun Temple, Katarmal :** It is located 16 km. west of Almora, in Uttar Pradesh. It is of 12th century A.D. The idol of sun is of brownish colour.

**Talwandi Sabo :** (Damdama Sahib). It is located in District Bhatinda of Punjab. Guru Gobind Singh prepared *Granth Sahib* here, dictating from memory to Bhai Mani Singh.

**Tanjore :** (Thanjavur) In Tamil Nadu. it is a city of beautiful temples associated with the Chola

dynasty Besides the temples of Brihadeswara, Gangaikonda Cholapuram, and Kampahareswara, the city also has a fort and a palace.

**Taran Taran :** It is 25 km. south of Amritsar. Sikh Shrine, on one side of tank was built by Guru Arjun Dev in honour of Ram Das. and completed in 1830. It is faced with marble up to the height of the first roof; rooms on 2nd floor beneath the dome have frescoes associated with the lives of Sikh Gurus.

**Thekkady or Periyar Game Sanctuary :** About 120 km. from Kottayam, near Cardamom hills, is situated this wild life and bird sanctuary. It is the home of wild boar, sambar, wild elephant, tiger, pig, deer etc. Motor boats on the lake are there to view these denizens in safety.

**Thyagaraja Temple, Thiruvapur :** One of the most ancient and biggest temples in South India, it preserves many inscriptions on its walls dating from the time of the Imperial Cholas to that of the Maratha rulers of Thanjavur. The main deity of the temple is Thyagaraja. The vast temple complex was erected by the middle of the 14th century.

**Tirukkalkunram :** Mid-way between Chinglepet and Mahamallapuram (Tamil Nadu), this famous Shiva temple is known for the strange phenomenon of the daily visit of 2 white kites which come to feed on food prepared for them by the hereditary priest of the temple. According to legend, they are the spirits of 2 saints which have been visiting this hill from times immemorial on their daily journey between Rameshwaram and Varanasi. They arrive an hour before noon and

are watched by crowds who see them feed and they fly away.

**Tunnel, Nehru :** It is a tunnel, which is a feat of engineering at Banihal (Jammu and Kashmir) 2,226 m. above sea-level, which cuts through the Pir Panjal range. It has 2 passages, each for one way traffic, through which heavy and light vehicles can ply and which cuts short the land journey to and from the valley of Kashmir.

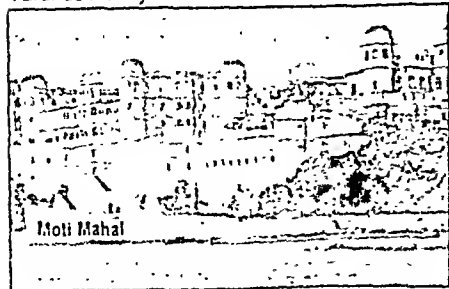
**Udaipur :** In Rajasthan, Rana Uday Singh of Mewar made the place his capital (1558). It is situated on wooded, hilly slopes by the side of the beautiful Pichola Lake. Skirting the water's edge are shining marble and granite palaces crowned by Maharana Pratap's magnificent palace with its peacock mosaic of Chhoti Chitrakuta and glittering mirror inlay of Moti Mahal. In the middle of the lake are two grand island palaces, Jog Mandir (1625) and Jog Niwas, now la luxury hotels. There is a great temple of Jagannath (1655) on high hills. The place is famous for wooden toys and textile printing.

**Vasco do Gama's Church :** Also known as St. Francis' Church, it was the first European church in India built by Franciscans (Portuguese) in 1503 at Cochin (Kerala) on land gifted by a Kerala ruler, as stated in palm-leaf documents still to be seen in church records. Vasco de Gama was buried in the Church (1524). His remains were removed to Lisbon in 1536, the grave stone being left behind, which gave the church its name.

**Victoria Memorial Hall, Calcutta :** It is an imposing building of white Jodhpur marble (1921). The planning and structure was that of Lord Curzon who wanted to construct an outstanding monument to British rule on India. The structure stands in a spacious garden.

**Vikramasila :** Vikramasila was a Buddhist monastery and centre of learning in Bihar and the foremost Vijayana monasteries for Buddhist missionaries carried Vijayana Buddhism in the 11th century A.D.

**Vivekananda Rock Memorial :** Kanyakumari. It is a temple.



edifice (completed in 1971) on rock about 1.6 km. in ocean at the southern most tip (land's end) of India. Swami Vivekananda swam out to this rock (1892) where he meditated and then visualised

his course of action in future. It is made of granite. Vivekananda's statue, larger than life, is in the main hall; black stone pillars have intricate carving. ■■

# PROMINENT NAMES ASSOCIATED WITH INDIAN CULTURE

**Ali Akbar Khan :** Ali Akbar Khan was the son of famous sarod maestro, Allauddin Khan. He founded Ali Akbar College of Music, Calcutta (1956). He was the court musician of Jodhpur who received Sangeet Natak Akademi Award for instrumental music in 1963. He got film award for music in *Hungry Stones*.

**Allauddin Khan :** He is an eminent sarod player and instrumentalist of Senia *gharana*. He established Mahiar Hand (1924) and received Padma Bhushan and Disikottama (Visva Bharati).

**Amir Khusrau :** He was a key figure in the spread of Muslim - or rather Persian - musical feelings and technique. He composed *qawalli* and *taranas* and wrote in Persian and Braj. He was a Sufi. He attempted to 'synthesise' Persian music and Indian music. The origin of *khayal* and the invention of sitar are attributed to him.



**T. Balasaraswathi :** She is known as a dancer of Bharatanatyam. She received Sangeet Natak Akademi Award for Bharatanatyam, Padma Bhushan, Hon. doctorate of Rabindra Bharati University. She conducted Bharatanatyam Summer School in San Francisco under the auspices of American Society for Eastern Arts. She is famous for her abhinaya.

**Bilhana (c. 1040-1130) :** He was a celebrated Kashmiri dramatist, poet and historian.

He wrote a graphic epic, *Vikramadevacharita* in honour of his patron, the King Vikramaditya VI. One of his plays is *Kamasundari* and a poem *Chaurpanchashika*.

**Bismillah Khan :** He was an instrumentalist-Hindustani, shehnai. He received Sangeet Natak Akademi Award, Padma Sri (1961) and Padma Bhushan.

**Nandatal Bose (1882-1966) :** He came to Calcutta from Monghyr in 1897. He had a flair for painting, so, he joined 'Government Art School'. He became a student of Abanindranath. His *Sutee* won a prize in the exhibition of Indian Society of Oriental Art. He developed close relations with distinguished Art scholars—Perey Brown, Ananda Coomaraswamy, Okakura. He joined Santiniketan and later organised its Kala Bhavan. He founded a handicrafts cooperative with a view to promoting the economic condition of the artists. He received many honours.

**Sachin Dev Burman.** He was a classical, folk and light music composer and director of many films. He received Sangeet Natak Akademi award for music direction and also got Asian Film Society (London) Award.

**M.F. Husain :** M.F. Husain was born



in 1915 at Pandharpur (Maharashtra). He is considered India's leading artist. At 18, he was awarded gold medal in exhibition at Indore for portrait done in oils. He joined with Amrita Shergil, Raza and Saiza to form progressive Artists' Group (1948). He had his first one man show at Bombay (1950). One picture from this exhibition was hung in Salon de Mai in Paris. He made a symbolic film *Through the Eyes of a Painter* (1966) which won the Golden Bear Award at the Berlin Film Festival. He studied ancient India for his *Mahabharata* and *Ramayana* series of paintings. Most of his later work is stylised, heavily symbolic and of an abstract nature but each is true to the Indian ethos.

**Ustad Allaaddin Khan :** He was an outstanding sarod player and the recipient of Sangeet Natak Akademi award for Hindustani instrumental music, Padma Bhushan, and Desikottama (Vishva Bharati). He composed new ragas like *Hemant, Prabhat kali, Hem Behag*, etc.

**Kunju Kurup (1880-1973) :** He was an outstanding Kathakali dancer. He was an able teacher who trained a number of outstanding dancers as Santha Rama Rao, Krishnan Nair and Minlatini Sarabhai. He was the founder member of Kerala Kalamandalam. He was awarded the Padma Shri, Sangeeta Natak Akademy Award and Academy Fellowship.

**Lachchu Maharaj :** Lachchu Maharaj (1901-1978) was a great Kathak dancer. He brought classical Kathak dance to films. He composed dances for films like *Ram Rajya, Mughal-i-Azam*. He directed the first-ever Kathak ballet *Matti Madhav* for Sangeet Natak Akademi and also received Sangeet Natak Akademi Award.

**Antsher Lobo :** He was a musicologist, instrumentalist and vocalist : Hindustani, *Khayal* of Jaipur *gharana* ; western, violin, guitar, composer. His special record is *Introducing Indian Music*.

**Zubin Mehta :** (1936- ?) A musical child prodigy he went to St. Xavier's College, Bombay to study medicine but gave it up for music. He won international conducting competition in England (1949) and conducted New York

Philharmonic with outstanding achievement became conductor of Los Angeles and Montreal Orchestras (1961) becoming youngest conductor of symphony orchestra in the U.S.A. and first person to become conductor of two orchestras simultaneously. New York Philharmonic made worldwide search for 'best music director' and appointed him as conductor in 1978.

**Mirabai :** Mirabai (A.D. 1499-1547) was the daughter of a Mewar chief and the wife of Rana of Udaipur (Capital of Mewar). She was totally devoted to the deity, Krishna. She became a disciple of Ravidas, a (low caste) saint. She composed devotional songs and hymns in Braj bhasha mixed with Rajasthani in honour of Krishna. Many of her writings were included in the *Granth* (sacred book of the Sikhs). She spent her last days in Mathura (Krishna's birthplace) and Brindavan.

**Pankaj Mullick :** He was a vocalist for Rabindra Sangeet, light music, bhajan and composer and music director of several films. He studied with Dinendranath Tagore and Durgadas Banerjee. He won the Dada Saheb Phalke Award (1973).

**Narasimha Mehta :** He is said to have lived and sung to his deity, Krishna, in the 15th century; some scholars think he flourished after Vallabhacharya. He was one of the leading literary figures of Gujarati literature.

**Vinayakrao Narayan Patwardhan :** He was a vocalist and actor. Hindustani, *Khayal* of Gwalior *gharana*. He was elected Fellow of Sangeet Natak Akademi, formerly the Principal of Gandharva



Mahandyalaya, Pune.

**Ravi Shankar**

Ravi Shankar is a brilliant sitarist who learned to play it from Allaaddin Khan. He was the first Indian to present Indian music at UNESCO meeting at Paris. He composed music for the famous film *Pather*



*Panchali* and for ballets *Discovery of India* and *India Immortal*. He received Silver Bear Award (Berlin) and Sangeet Natak Akademi Award for Hindustani music. Famous group, the Beatles, used the sitar for their songs.

**Satyajit Ray :** He has been regarded as one of the greatest film directors of the world. He founded the Calcutta Film Society. He produced the famous film *Pather Panchali* which broke new ground in the Indian film world; at the Cannes Festival (1956) it was declared "The Best Human Document".



The next film *Aparajito* along with *Pather Panchali*, won 12 international awards. The third film *Apur Sansar* was also highly acclaimed. Among the other films directed and produced by him which have become famous are *Kanchenjunga*, *Charulata*, *Nayak*, *Tin Kanya* and *Asania Sanket*. He received the prestigious "Special Oscar" for his lifetime achievement and the Legion d'Honneur (Highest Civilian Award of France). In 1983 he earned the rare distinction of being awarded the life-membership of the British Film Institute. And as back as 1967 he was awarded the Magsaysay Award.

**M.S. Subbulakshmi :** Trained from childhood in the art of singing (Karnataka music) by her mother, stepped into fame from the time of her performance at All India Music Conference (1943). She was acclaimed still more all over India as singer of Mira Bhajans in film *Meera*, sang for Gandhi, at his request, the Bhajan *Har Tum Hero*, on his birthday, won many awards including Bharat



Ratna, Ramsay Magsaysay Award (1974).

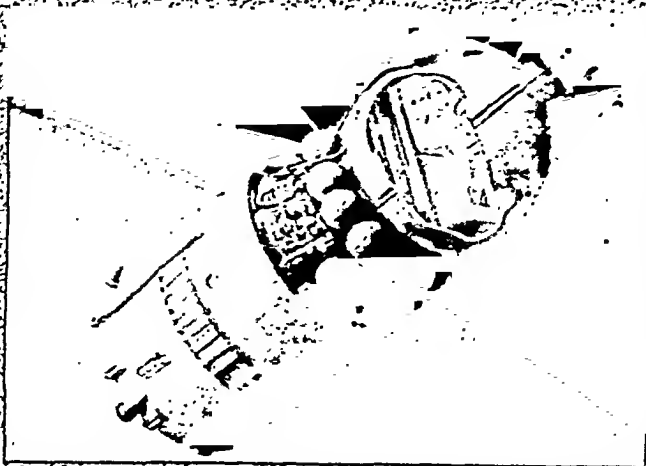
**Abanindranath Tagore (1871-1951) :** was the nephew of Rabindranath Tagore and a great painter. He produced a set of paintings *Krishna Lila* (1895) synthesising the Indian and European styles in an original manner. He established a new school of art. He established the Society of Oriental Art (1907); held exhibitions in Paris and London (193) and Tokyo (1919) becoming the first Indian artist to earn international fame.

**Tansen (1506-1680) :** He was born Ramatanu but later came to be known as Tansen. He was one of the greatest poet singers of his time. Akbar conferred the title of Tansen on him, a veteran musician. He was the discoverer of several ragas and a few instruments including Rudra Veena and is said to be the innovator of the famous ragas, 'Miyan-ki-Todi' and 'Dargah Kanada'.

**Thyagaraja (1767-1847) :** He was one of the greatest of the music composers of his time. He revolutionized the very nature of Karnataka music. The secret of his art lay on producing something utterly new from ragas and talas used in the past and over again in the past. He built a unique musical empire with only one type of composition, the *Kriti*.

**Uday Shankar (1900-1977) :** He was an exponent of modern Indian dance and ballet. He evolved a new form of Indian dancing based on Indian tradition and idiom; his ballets were *Tandava Nritya*, *Shiva-Parvati*, *Lanka Dahan*, *Rhythm of Life, Labour and Machinery*, *Ram Leela* and *Lord Buddha*. Full-length feature films of his dance, *Kalpavriksha* and *Shankaroscope*, were his ventures in film production.

**Raja Ravi Varma (1848-1906) :** He was a famous painter. The painting of Shakuntala writing a love letter to King Dushyanta made him famous. He also painted in oils. He won a gold medal and diploma at World Art Exhibition, Vienna for his picture of *Nair Lady* (1873). His ten paintings were introduced in International Art Exhibition in Chicago out of which three won the first prize.



# SCIENCE & TECHNOLOGY

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# ISSUES IN FOCUS

## Science and Technology of 2020

With the approaching of a new millennium various visionary projections have been made by heavy weight scholars in the fields of politics, society, religion future way of life, science and technology, cultural pattern etc. Among all these futuristic projections, science and technology plays the role of trend setter. Science is the only responsible factor, which brought the biblical 'forbidden fruit' to the mind-boggling discovery of gravitational force, and it is transforming the world civilization to a new perspective

Six leading scientists of the Engineering and Physical Sciences Research Council (EPSRC) explain their visions of 2020 in an optimistic manner by bringing exciting and beneficial development that may change the world drastically by the year 2020. These six scientists have projected about the big breakthroughs by tiny particles, fulfilment of dream, communication integration, sustainable development, maximum benefits to patients with minimum surgery and new technology for new ways of working

In the electronics world, 'nanoparticles' are bringing about a revolution. Use small nanoparticles in conducting, semi-conducting, and non-conducting, will drastically reduce the amount of power and their size. Professor Brian Johnson believes by using nanoparticles down in polymers supports, it can produce a range of unusual electronic properties. He also believes, by use of 'electron jump' devices- which used to restore energy - can help to build computers and sensors to a very small size, so that doctors could stamp them onto people to monitor their body functions. Researches are going on to use nanoparticles for petrochemical production. Jonson believes that the amount of pollution can be reduced or bodily malfunctions

can be improved by controlling and monitoring sense organs.

Professor Colin Humphreys gives vistas of 'genetic engineering' with the help of materials. Implantation of 'biomaterials' in human bodies will last for a life time. Present day artificial joints last 10 to 15 years but artificial joints made from biomaterials will last for a lifetime. With the help of 'tissue engineering'- by combining a person's own tissue with biodegradable polymer - will get the right shape and be able to grow completely new body parts. It will change the concept of health care. New materials will be developed for use in fuel cells and turbine blades to produce non-polluting cars and super-efficient power stations.

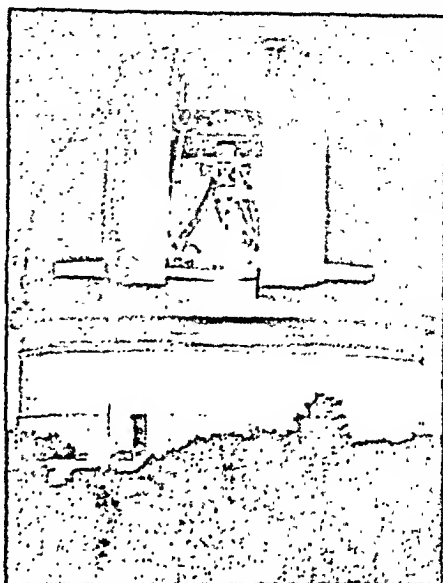
Wendy Hall, the lady of communication integration, is in a mission to weed out 'information chaos' to help people find the information that they want, when they want it. In the near future personal computer will be dead. Instead of buying a computer people will by devices which is a computer, a phone, a television or whatever you want it to be. This will possible only when all communication technologies become integrated. Twenty years hence, a phone call will be replaced by an integrated global information network - 'so that you can communicate with people and other devices instantly to get all the information you might want

Round Clift speaks about massive 'chemical plants' to reduce industrial pollution and sustainable development for industries. Sustainable development for a commercial company means assessing its economic, environmental performance and its social benefits. In the coming days-giant companies will take sustainable development seriously and will reduce their material and energy throughputs. Scientists, engineers, sociologists and

ethical philosophers will work for a common purpose.

Mike Brady notes that 'keyhole surgery' on knees, brain and breast are no more a distant cry. For keyhole surgery on knees one can rely on optical fibre to provide information, but brain and breasts are immensely more complex and need more informations. In the next two decades exciting possibilities lie at the interference between image generation analysis and molecular medicine.

Professor Julian Jones predicts that in coming two decades people will not think about a machine for a specific job. They will be thinking in terms of a society of machines all interconnected and working together. Different physical technologies will interact so closely that they will be like our technology and it will be difficult to distinguish between electrical and optical machine. Future science and technology research projects will require more people to talk to each other and to work together, instead of a specific group of scientists.



It is the quality of people that will determine the tomorrow's technology.

## Y2K Crisis

### A quick review of the problem



The problem as is now well known is primarily related to the use of two digits for representing

the year in computers. At the end of the 1990s it appeared to be a trivial problem, the implications became clear to experts only in this decade. The seriousness of this problem may be assessed from the fact that an investment of over US\$500 billion will be required to take remedial measures in the early days of the computer revolution, computers had memories of a few kilobytes. So when digital programs were first written, programmers stored the data as small as possible. And a digit represents a bit, which takes 4 digits to represent a major space saving measure can be multiplied by thousands of records in a system.

Computers got bigger and bigger, the convention of 2-digit years was changed to 4-digit years on January 1, 2000, while some systems still start writing 1100 and 1200.

computer systems which are not Y2K compliant are going to be in for big trouble. They will operate as if the date is 1.1.1900, which will in turn cause loss and distortion of data. From the technical point of view, the problem was completely understood decades ago, but until recently, no one really appreciated the number of systems it would affect (even 10 years ago, there was a lot fewer computers in the world than at present). In particular, the problem of embedded systems was not anticipated.

Embedded systems include the chips buried inside your appliances as well as inside utilities like power plants, refineries, the phone system etc. In the last couple of decades, embedded systems have become very cheap, and this has made them all pervasive. Our phones, fax machines, VCRs, TV, CD-Player etc have all embedded chips. Most shops using computerised cash register or inventory systems are also vulnerable.

Since the Y2k problem was never really addressed by the software industry, it remained an area of least concern. Now as companies embark on frantic projects to fix Y2K, estimates of cost have also gone up. The consequences of failure to fix the bug (including massive legal bills) are now very apparent. So much so that experts are worried about a complete collapse of the world economy.

Big companies, including big banks are spending millions of dollars to fix this problem. But the problem lies for smaller companies. They don't have proper budget to overcome this. In India, the economy is mostly made up of small and medium sized companies. Not only do they employ most of the workforce, but they are also critical suppliers to the big companies. It is the overall impact on these companies that is yet to be ascertained.

**Doomsday scenario :** Power could very well be disrupted even all over the US. This doesn't mean that power plants can't be restarted. Many plants have cold start capability, and can restore

the grid. International communication services could be affected but it is reasonable to assume that given power and time to work, the phone companies would soon restore normalcy. The Boeing Company has checked out its planes and found only a couple of problems especially in older aircraft.

**Computer hardware :** As the system date and time is taken from the hardware by the operating system for onward transmission to application development tools and software, the basic hardware Real time clock (RTC), and firmware (BIOS) need to support the complete date and time information. RTC stores the date and time except the century part, which is stored in CMOS as 19. In most of the systems, century stored in CMOS does not change to 20 at century roll over time. However it can be set to 20 manually, giving a full date on Jan 1, 2000. For critical online applications, a Y2K utility can be installed, which can monitor the change over and set the century part in CMOS to 20 automatically. Alternatively BIOS can be upgraded to support automatic century roll over.

**System software :** Support for complete date at the operating system level is also very essential. Date and time are involved in many OS commands like directory listing, backup etc. Incomplete date may lead to problems in chronological ordering and manipulation of file objects. Testing of OS for Y2K compliance is not easy as so many components of OS deals with date. According to information available on Internet, in most all the operating systems, except those supplied from late 1998 onward require Y2K compliance. Information about compliance of various tools is readily available on Internet. Patches as well as upgradation of many software tools are also available.

**Application software :** For an application software the following three options are possible.

- (i) **Discard:** The application may be in the process of getting phased out and hence would not require any action.

- ii) Replace: 'Redevelopment in a new platform may be a better option. So it provides an opportunity to switch over to new technologies'
- (iii) Modify: The application may have to be made compliant by suitable modifications and testing.

**Data communication system:** Network services such as E-mail, web services, EDI, electronic commerce etc pose a serious Y2K challenge. It requires all the data communication sub-systems LAN, bridges, etc and communication protocols to be made compliant for above services to be run successfully in the year 2000. As these services involve sub-systems across organizations, any non-compliant link in between would lead to breakdown of services. Tools are available today, which can scan a data network, identify all the devices their version can produce and produce a compliance status report, which can be used for further reactive action.

**Embedded system:** Apart from computer hardware and software embedded system, embedded systems i.e. systems which have micro-processor chips pose a bigger challenge for achieving year 2000 compliance. According to estimates, more than 25 billion microchips are scattered all over the world in almost all kind of objects like VCR, medical equipment, automobiles, traffic lights, airplanes, satellite, telecommunication systems, control systems of power & chemical plants etc. It is estimated that at least a small percentage (5%-10%) of such devices will be affected by Y2K. Some examples of embedded systems are:

- Manufacturing plants
- Power grid systems
- Oil refineries
- Nuclear power stations
- Supervisory control and data acquisition (SCADA) system
- Traffic lights
- Electric Telephone Exchange
- Digital Cable television systems
- Communications and entertainment satellite

- Global positioning system devices
- Digital telephone and cell phones
- Fax machines
- Security systems
- Digital copier
- Time recording system (e.g. VCR's, time clock etc.)
- Digital still and video cameras etc
- Microwave
- Answering machines or voice mail
- Banking & Finance
- Automated teller Machine
- Credit card systems
- Patient monitoring equipment
- Pacemakers
- Medical imaging equipment
- Airplanes
- Air Traffic Control Systems
- Signalling systems
- Radar systems
- Shipping

**What can be fixed?** People say Y2K is a computer problem, but let's be more specific. It is a software problem. Most people know the difference now. With embedded system (production is a billion a second), have all their time buried into a sea of chips as a PCB (Read only Memory) and mounted on the main board along with the computer. So when we ask what can be done, we categorise computer software into 3. Big companies go for a mix of software developed by the company and software that they purchased. The company has its own software, although sometimes it is expensive. A user or desktop software can also have the best, you can get it for free. You can't, however, since the code is not open source. The software that the user has to develop the hardware has to connect the hardware. Some companies have changed the whole code base. Fixing the code base is a very difficult task.

of the systems we have to replace the chip. Similar systems exist everywhere in the industry. They use much different type of computers, with software devised by many different companies. There is nothing that could fix them all. Also, we can't even find all the embedded systems that will be affected.

When we look at software that can be upgraded and modified, we still have the problem that it's written by many different authors and in many different programming languages. Also, software code on source code is not available to various reasons. Even after a 'fix' is made, that's not the end of the story. Something like a quarter of the changes made in a 'fix' will introduce new bugs. So, after fixing the software, you have to test it. This means running it with realistic dates, on the hardware it's supposed to be used on, with the date set to sometime in 2000. Actually, you have to test multiple dates, to make sure the transition into 2000 is handled correctly. Problems may occur on February 29 (2000 is a leap year).

Fixing the databases is the biggest of the problem. A database is a separate program from the application. A database is like a general-purpose file cabinet that knows how to keep things organised. When fixing Y2K bugs, databases are to cause biggest problems because they have a large number of data and changing all of them is practically impossible. The banking system and accounting system also used the same techniques. So, banking sector is one of the worst affected sectors by Y2K bug.

**India & Y2K : Are we prepared?** : The Government of India is committed to control the Y2K crisis in critical areas. Serious efforts have been made to sensitise such organisations in the country for strict compliance in a time bound manner. A high-level action force on managing the impact of Y2K in India has been set up by the Government of India with representatives from the government, industry associations, banks and financial institutions, defence services, Railways etc.

**IT Task force recommendation** : The IT

Task force set up by the Government of India had made the following recommendation with regard to year 2000 Problem.

"Recognising the catastrophic effect of the Y2K problem for solving which a few hundred billion dollars are being spent around the world, an immediate investment of Rs. 700 crores as corpus funds shall be mobilised to control the crisis in critical government, public and private organisations and services; efforts to sensitise such organisations in the country facing the crisis shall be taken up by the Government immediately including issuance of Government orders for strict compliance in a time bound manner; a high level empowered Task Force with representatives from the government, industry associations, banks and financial institutions, Defence Services, Utility and other Public service organisations, Railways, among others, shall be constituted by the Government of India".

**High level action force** : As a follow-up to the decision of the Government with regard to the Y2K problem, a High Level Action force on managing the impact of year 2000 problem in India has been constituted under the Chairmanship of Member (planning commission) having secretariat at National Informatics Centre.

*The terms of reference of the action force are as follows.*

- (i) To identify critical sectors in the country which are required to be monitored for handling the Year 2000 problem in the country.
- (ii) To get sector-specific action plan prepared by the respective organization/agencies for remedial work related to the problem.
- (iii) Periodically monitor the implementation of the action plan.
- (iv) To make plans for awareness building among the affected categories of organisations, the Parliament, the press and the public.
- (v) To take necessary steps for the establishment of a Corpus Fund of Rs. 700 crores to address the Year 2000 problem in India.
- (vi) To evolve a mechanism for providing financial





necessary action and a lot of progress has been achieved. The Ministry of surface Transport has issued a directive to all major ports to prepare a contingency plan.

The Power sector has been considered as the top priority sector to avoid any cascading effect. Out of the total of 93739 MW of the installed generating capacity in the country with an effective capacity of 92904 MW, only 31708 MW is influenced by Y2K. In the remaining 61196 MW, the controls are of Analog character (not digital) and therefore, the operation is not influenced by Y2K. Therefore the attention has been on 31708 MW out of which 30641 capacity has been made Y2K compliant. The remaining 1167 MW capacity which is spread across five regions namely northern, western, southern, eastern & north eastern is being closely monitored.

**Y2K challenge blows over** The much hyped Y2K threat finally proved to be a paper tiger. On the midnight of January 31, as people partied and danced to meet the new millennium, a core group of software engineers, security agencies and government officials all over the world were closely monitoring the impact of the dreaded Y2K bug. As seconds after midnight on January

31, 1999, turned into minutes and the minutes finally turned into an hour, the anxious wait for those on the Y2K trail soon turned into an relief and joy. The world it seemed had conquered a very grave problem. India, much to the delight of the government and the software industry, also made a smooth transition. All major sectors such as banking, aviation, space, nuclear industry, telecom, railways, etc. successfully weathered the Y2K bug. But, it must be noted that millions of dollars were spent round the globe to set right this technical problem. The Indian software industry has benefited from the Y2K crisis. Many Indian companies have gained fresh access to the global market as a result of the Y2K problem, and this exposure has paid them rich dividends.

**Conclusion :** It is clear that notwithstanding the initial prediction of a global collapse, the situation has been brought under control to a large extent. India, which was initially slow in responding to the challenge, has now risen to the occasion and experts believe that the damage has been contained. As India enters into the new millennium on its strength of software technology, the country's response to the challenge of Y2K problem would provide an indication of how capable we are in tackling such situations in the future too.

## Biofertilizers

### An eco-friendly alternative

Biofertilizers are defined as biologically active products or microbial inoculants of bacteria, algae and fungi which may help biological nitrogen fixation for the benefit of the plants. Biofertilizers also include organic fertilizers (manure etc.), which are rendered in an available form due to the interaction of microorganisms or due to their association with plants. Biofertilizers thus include the following: (i) symbiotic nitrogen fixers (*Rhizobium* spp.), (ii) asymbiotic free nitrogen fixers (*Azotobacter*, *Azospirillum*, etc.), (iii) algae biofertilizers (blue green algae or BGA in an association of *Azolla*)

(iv) phosphate solubilizing bacteria (v) mycorrhizae and (vi) organic fertilizers.

**Necessity :** The need for the use of biofertilizers has arisen primarily for two reasons. First, because increase in the use of fertilizers to increase in crop productivity, second, because of increased usage of chemical fertilizers to

overcome various problems. Therefore, the use of biofertilizers is economical and environment friendly.

The pragmatic approach will be to integrate the integrated nutrient supply system involving combination of the use of chemical fertilizers

biofertilizers. India is not self sufficient in fertilizer production. An estimated capital of Rs. 7000 crores was needed by the end of Seventh Five Year Plan period to achieve self-sufficiency. Realizing the importance of biofertilizers in supplementing the use of chemical fertilizers, the Government of India launched the 'National Project on Development and use of Biofertilizers'. Under this project, one national centre (at Ghaziabad, U.P.), six regional centres and 40 BGA production centres have been established.

#### Major organisms that are biofertilile -

**Rhizobia species :** Rhizobium is a gram negative soil bacterium, which is able to enter into symbiotic relation with legumes (pulses). They fix atmospheric nitrogen and thus not only increase the production of the crop, but also leave a fair amount of nitrogen in the soil, which benefits the subsequent crop. The following seven groups of Rhizobia have been recognized for inoculating legumes in India. These are Rhizobium leguminosarum, R. meliloti, R. trifolii, R. phaseoli, R. lupini, R. japonicum, and R. species. The nitrogen fixing ability of legumes inoculated with these Rhizobia ranges from 50kg to 150kg per hectare.

**Asymbiotic Nitrogen-fixers:** Azotobacter and Azospirillum when applied into the rhizospheric soil, they fix atmospheric nitrogen and make it available for non-leguminous plants. They also synthesize growth-promoting substances, helpful to the plants. The most efficient strain of Azotobacter fixes about 30kg nitrogen and that of Azospirillum fixes about 25kg of nitrogen.

**Algal Fertilizers :** Blue green algae (BGA)

and Azolla constitute a good system of biofertilizer, particularly for lowland paddy. BGA inoculation (without Azolla) in form of composite cultures of alga genera like Anabaena, Nostoc, Plectonema, Aulosira, Oscillatoria, Tolypothrix, etc. have been found to be more effective than single cultures. Application of dried blue green algae flakes at the rate of 10kg per hectare is recommended ten days after transplantation of paddy. Besides providing nitrogen to the crop BGA provides the following other advantages: (i) algal biomass accumulates as organic matter, (ii) growth promoting substances are produced, which stimulate growth of rice seedling, (iii) it also helps in reclamation of saline and alkaline soils.

**Other Bacteria :** Phosphate solubilizing bacteria (PSB) e.g. Thiobacillus and plant growth-promoting rhizobacteria (PGPR) including Pseudomonas fluorescens and P. putida are important new biofertilizers. PSBs convert non-available inorganic phosphates into soluble organic phosphates, which can be utilized by crop plants. PGPRs produce siderophores (iron-chelating substances, e.g. pseudobactin), which chelate with iron and make it unavailable to harmful fungi, e.g. *Erwinia*, leading to their death. These biofertilizers are yet to be commercialized in our country.

**Organic Fertilizers :** India has vast potential of organic waste resources, which include animal dung, animal urine, bone meals, slaughter house waste, crop residues, oilcakes, urban garbage, sewage effluent, etc. Much of these organic wastes remain unutilized, leaving enormous scope for producing organic manure through recycling.

## Bio-Reclamation

### Microbial restoration of degraded lands

Increased human activity has affected the different ecosystems in a variety of different ways. One of these effects has led to degradation of habitats, including cultivated land. Land areas accounting for about 50 per cent in the world are arid with problems of salinity, acidity or heavy metal

toxicity. Restoration of these degraded lands therefore, is a major concern both in the developing and developed countries. This is also essential due to rapid urbanization leading to the decreasing area of available land for cultivation in rural areas.

However, the available conventional

methods of reconstruction are relatively inefficient, the advent of biotechnology has created unprecedented opportunities for recovery of degraded ecosystem through the manipulation of biological systems. In this article various methods involving microorganisms for restoration of degraded land will be discussed. This includes (i) use of mycorrhiza (ii) use of nitrogen fixing bacteria to improve soil fertility (iii) use of Frankia and (iv) use of engineered microbes for removal of toxic heavy metals from degraded lands

**Use of mycorrhizae in restoration of degraded lands :** Degraded lands, which are suffering with problems like drought, poor nutrient supply and other abiotic stresses, there is usually only a brief period, which is favourable for growth. If tree seedlings do not get established during the window period, they are unlikely to survive. Mycorrhizae can improve seedling survival and growth by enhancing uptake of nutrients (particularly phosphorus) and water and by providing protection against pathogens. Mycorrhizae are symbiotic non-pathogenic associations between plant roots and fungi.

Inoculation of hardwood and conifer seedlings with specific fungi in nurseries and glass-houses has shown dramatic improvement in growth and survival following transplantation in routine and adverse afforestation sites. Similarly, experimental infection of micropropagated plants during rooting should increase their survival chances in field, which is very important in case of plantation on degraded lands. Growth regulators and nutrients supplied by microorganisms like vesicular arbuscular mycorrhizae (VAM) may promote root and shoot growth in tissue cultured plants.

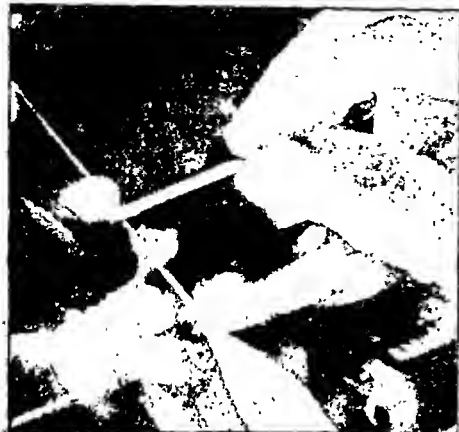
**Use of microbes for improving soil fertility :** The mere use of mycorrhizae will not lead to the improvement of soil fertility. But the successful growth of plants in degraded land could be achieved by supplementing Rhizobium and Azotobacter like nitrogen fixing bacteria along with mycorrhizae. These nodule-forming microorganisms can be used in both leguminous and

non-leguminous plant species comprising annuals (cereals and legume crops) and perennials (trees). Efforts are underway to manipulate the gene of both host and rhizobia to obtain maximum efficiency of nodule formation. It is well known that Rhizobium forms symbiotic association in the roots of leguminous crops, leading to the formation of nodules, which help in improving the fertility of soil through fixation of nitrogen from the atmosphere. The use of 'legume-Rhizobium' system for restoration of degraded lands may involve the following steps; (i) production of Rhizobia strains on commercial scale (ii) development of efficient strains of Rhizobium and (iii) evolving suitable technique for rapid seedling establishment and nodulation. Nitrogen fixing actinomycetes e.g. Frankia have also been used for nodulation in non-legumes. Frankia helps in nitrogen fixation in non-leguminous plant species and therefore can be used for land reclamation through reforestation.

**Restoration of soils contaminated with heavy metals :** Industrial and domestic effluents containing variable amounts of heavy metals, are being increasingly used for irrigation and lead to soil contamination. The waste effluents of several modern industries also contain heavy metals like mercury, lead and cadmium, which cause poisoning. For instance, mercury causes metal poisoning, which attacks the nervous system of patients. Lead causes mental retardation of children. The use of lead free petrol is one of the steps toward checking this pollution. The property of some species of bacteria and algae, to extract metals from their surroundings, has been utilized to purify industrial effluents. Biotechnological approaches are recommended, where metal extracting organisms (mainly algae) can be grown in ponds, where factory effluents (rich in heavy metals) are discharged. The microbes will extract the heavy metals and sequester them inside their cell membranes. The metal can be subsequently recovered from these microbes. Genetically engineered more efficient microbes can also be developed and used for this purpose. ■

## Optical Fibres

### 'Photonic band gap' is making a revolution in fibre technology



A team of scientists in the United Kingdom developed a revolutionary super-effective optical fibre that guides the light through a central hole which can dramatically upgrade the power carrying capacity of optical fibres into the multi-kilowatt region. This fibre technology is the world's first multi kilowatt single mode fibre. Fibre optics is the use of very fine transparent fibres of glass- with the purpose of transmitting light. Light passes along the fibres by a series of total internal reflections.

Up to now a solid optical fibre can carry limited raw laser power and at very high power, the glass simply cannot cope with the intense fields and is torn apart. However, with the development of new optical fibres having a large hole in the middle that potentially permits the transmission of huge amounts of energy, the problem has been eradicated. Traditionally, optical fibres carry light through a glass core covered by a cladding which prevents the light from leaking out.

Both the core and the cladding are made from silica glass but the core possess slightly

different optical properties as a result of a sprinkling of atoms called dopants. The function of these atoms is to raise the refractive index of the glass enabling the light traveling through the core by a process called total internal reflection. But the problem here is that extremely clear glass can only transmit a limited amount of power. At very high powers the intensity is so high that it can even lead to damage in the glass. To overcome this problem, the researchers developed a new mechanism called "photonic band gap". They have created photonic band gap in a new fibre with a lattice of microscopic air holes arrayed in an egg-box pattern and running along its entire length. In order to make these fibres the scientists stacked many thin glass tubes and fused them together at high temperature.

It was stretched into a thin fibre with many long and thin holes all along its length. The band-gap effect occurs when the passing light is scattered at the boundaries of air and glass. This band gap effect depends on the wave length, angle of light, diameter and spacing of the air holes. However, at certain angles the scattering prevents light of some wavelengths from penetrating the cladding material. As a result, light goes straight down the hollow centre of the fibre.

The early photonic band-gap fibres were built to a honeycomb design. Though it was able to guide light, it was confined to glass regions near the fibre axis-that means it had power limits.

Photonic band gaps were first predicted in 1987 by two physicists working independently. They were Eli Yablonovitch at Bell Communications Research in Red Bank, New Jersey, and Sajeev John of the University of Toronto.

Their prediction was prompted by the fact that waves of electrons behave in a similar


manner to waves of light. In semiconductor chips, electrons cannot exist if their energy lies within a range known as the band gap

The breakthrough in the research team's work came with the prediction that the air hole had to be quite large for light to be able to 'fit' into the hole, trapped by a two dimensional photonic band gap in the holey photonic crystal cladding. Earlier the research team showed that photonic crystal fibre techniques can allow production of solid core single-mode fibre with a core area of 10 to 20 times larger than those using conventional technology. The solid core can be dropped with lasing atoms, permitting the production of fibre lasers with powers 10 or 20 times larger than the conventional fibre. Earlier, holey fibre lasers used to deliver one to two kilowatts, whereas now the newly developed fibre laser can deliver 110 watts. Now, the newly developed one-kilowatt single-mode fibre laser might be used in cutting and welding tools for repairs by astronauts to orbiting spacecraft.

Optical fibres have been used by the telecommunications industry instead of conventional wires with great success and thanks to these, there has been tremendous growth in the use of networks for audio, video and data transfer. In the conventional optical fibre, the basic idea is of total internal reflection which means there is no loss of data, unlike the conventional wires and cables where it is prone to some loss of data. Glass is the typical medium of fibre optics. A typical glass optical fibre has a diameter of 125 micrometers, which is actually the diameter of the cladding, or the outer reflecting layer. The core, or the inner transmitting cylinder, is commonly about 10 micrometers in diameter. The refractive index of the central core is larger than that of the outer covering which is the secret of the total internal reflection that fibre optic cables are famous for. The most important aspect of this new fibre is that it 'guides' light in air. This new fibre could be used to deliver light at those wavelengths without any loss of power.

## INSAT-2E

### Giving a fillip to satellite technology



Insat-2E, the fifth satellite of the second generation of Indian satellite series, was recently launched from French space centre at Kourou. The space centre is located in French Guiana. The satellite was launched aboard flight V117 of the European launcher Ariane 42P which made it distinctive from previous INSAT launches. All other earlier launches were shared with other satellites whereas V117 was dedicated to INSAT-2E. The satellite has 17 transponders, out of which 11 would be lent to the INTELSAT consortium of countries which is an association of 133 countries. The lease arrangement would fetch \$10 million a year under an agreement signed between ISRO and INTELSAT. Thus we can easily construe that the INSAT 2E wouldn't help to enhance the telecommunication and television channel capacity in India in a significant way as more than half of its transponders would be leased to the INTELSAT. It is, in date, the most advanced satellite built by India in terms of payloads and technologies used in the hardware.

The INSAT 2E would also provide the widest communication coverage

ula at a particular stage of the crop in the

According to Zeneca's patent description, the use of one such "killer gene" is the gene for a maternal uncoupling protein isolated from the adipose tissue of *Rattus rattus*, the "Fat Rat". The patent ridiculously suggests that the terminator will benefit farmers by preventing pre-emptive germination of seeds of small grain cereals like wheat or rice (which lead to a loss of seed quality) when weather is humid or the harvesting is delayed. But the real goal is to hook the farmers on genetically engineered seeds that does reproduce and force farmers to buy the seeds every year. Farmers will, thus, lose their age-old right to save the seeds.

**The Traitor Technology :** While we are groping in dark for countering the ills of Terminator technology, there is another threat in the way from the Traitor technology. Exactly one year after the identification of Terminator Technology, ICRISAT has identified several technologies in the way that can be used to genetically teach the seeds to accept only certain combinations of agrochemicals. This has been dubbed as "Traitor Technology" by RAFI. The Traitor Technology goes a step ahead to genetically modify a plant in such a way that it will respond only to specific agrochemicals, i.e. fertilizers, pesticides, herbicides, etc. The patents of Novartis (a Swiss company) for Traitor technology are a large, broad set of related monopoly claims for the development of chemical-dependent plants with the use of proprietary inducible promoters and genes. The patents are particularly aimed at the external chemical regulation of a plant's innate resistance to biotic stress, as well as introducing and turning on or off genes such as sterility, flowering, resistance to biotic and abiotic stresses, and nutritional and flavour attributes. Novartis believes that it can apply the technology to rice, maize, wheat, soybean, sunflower, cotton, sorghum, clover, tobacco, cell-cultured carrot, arbut and many other

Novartis explicitly claims the introduction of the traitor traits by deactivation of the essential natural resistance functions of the plants. By linking this deactivation to inducible promoters, plants can be developed that will not exhibit certain desirable traits like germination, pest resistance, etc., unless exposed to the proprietary chemical. Novartis suavely calls it "inactivation of endogenous regulation." According to the company, the technique results in a situation in which "genes which are naturally regulated can be regulated exclusively by the application of a chemical regulator on the plant." In other words, the plants will be drugs addicted.

If companies can genetically programme suicide seeds to perform better only with the application of proprietary agrochemicals, it will dramatically increase the sale of their patented agrochemicals and other proprietary inputs. If Terminator and Traitor technologies both are used together, which is most likely to happen, the farmers will have no other option but to buy seeds and other agrochemicals from the MNCs every year at their monopolised prices.

**The next generation of seed sterilization techniques :** Giant genetic companies do not seem to be complacent with their genetic seed sterilisation technologies, because they not only wish to compel the farmers to buy their seeds every time, but they also want to force the farmers to buy other inputs from them only. After facing flak for the terminator technology (Terminator I), MNCs have worked out the technologies in which the seeds germinate only if exposed to their patented chemicals. No doubt, they render crop varieties with inherent extraordinary traits but at the same time, they manipulate the genetics of the plant in such a way that a particular trait will not be expressed unless their recommended agrochemicals are used. Terminator II and Terminator III are the examples of such technologies.

**Terminator II :** Monsanto's Terminator II is a technique for developing seeds that will not germinate unless exposed to a proprietary chemical.

Agricultural Research (CGIAR). Such a strong, unambiguous and courageous decision was made in a meeting on October 30 1998, at the World Bank headquarters at Washington D.C. This is obviously a pro-farmer decision made in defence of global food security.

## What is Terminator seed?

: Today, scientists can isolate any gene of interest from any living organism, cut apart the DNA molecules, and paste them together almost at will, regardless of the source of the molecules, and incorporate that gene into any other organism, such as micro-organisms, higher plants and animals. It has now enabled the scientists to tailor-make genes and have them expressed in any desired cell of the body of an organism. All these have become possible because of the revolutionary innovations in molecular biology, biotechnology and genetic engineering. Terminator seed, also known as "suicide seed" is, of course, a product of this modern science of Genetic Engineering and Biotechnology. Terminator seed terminates its own survival after one generation by aborting the process of embryo development, a sort of *hara kiri* or suicide. There are at least three genes involved in this technology and they are known as terminator genes. The (in)famous Terminator Technology, identified by RAFT (Rural Advancement Foundation International), a Canadian-based rural advocacy organization in March 1998, is a technique to genetically alter a plant so that the seeds it produces are sterile. When farmers purchase (terminator) the seeds from the seed company and sow in the crop fields, the seeds germinate to give rise to productive but sterile crop, which means the farm-sowed seeds will not germinate if used for raising next year crop. The



produce can be used as grain only. The farmers are, therefore, forced to be dependent on a seed company for the seed every year. It is a threat to agricultural biodiversity, the wellbeing of more than a billion rural people who depend on farm-saved seeds for raising their crop. Virtually, all the giants in genetic engineering (Transnational corporations) are working on their own 'genetic seed sterilization' patent claims. Over two dozen new patent claims were identified by RAFT till January 1999. This high number of patent claims reveals that engineering seed sterilisation is not an isolated research agenda, it's the Holy Grail of the agricultural biotechnology industry, according to RAFT.

## Verminator- the killer gene :

Verminator is a broader and more pervasive violation on the Terminator", says Pat Mooney, Executive Director of the RAFT. It is a new chemically activated seed killer, the European answer to the American Terminator Technology. Verminator kills seeds (according to one of inventor's claims) by 'switching on' the rodenticide genes that have been bioengineered into the crop plants. The technology, which activates a "killer gene" (or prevents the expression of genes essential to normal plant development), makes it necessary for the farmers to apply a "chemical trigger" at certain stage(s) of the crop plants to get the maximum yields. For example, genetically engineered seeds produced by Zeneca (a chemical company) would not germinate unless exposed to a proprietary chemical trigger. In other words, plants could be genetically programmed to become stunted, not to reproduce, or not to resist/tolerate diseases unless sprayed with Zeneca's chemical

formula at a particular stage of the crop in the field.

According to Zeneca's patent description, the source of one such "killer gene" is the gene for mammalian uncoupling protein isolated from the brown adipose tissue of *Ratus ratus*, the "Fat Rat gene". The patent ridiculously suggests that the Verminator will benefit farmers by preventing pre-harvest germination of seeds of small grain cereals like wheat or rice (which lead to a loss of market quality) when weather is humid or the harvesting is delayed. But the real goal is to hook the farmers on genetically engineered seeds that does not reproduce and force farmers to buy the seeds every year. Farmers will, thus, lose their age-old right to save the seeds.

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Novartis explicitly claims the introduction of the traitor traits by deactivation of the essential natural resistance functions of the plants. By linking this deactivation to inducible promoters, plants can be developed that will not exhibit certain desirable traits like germination, pest resistance, etc., unless exposed to the proprietary chemical. Novartis suavely calls it "inactivation of endogenous regulation". According to the company, the technique results in a situation in which "genes which are naturally regulated can be regulated exclusively by the application of a chemical regulator on the plant." In other words, the plants will be drugs addicted.

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**Terminator II :** Monsanto's Terminator II is a technique for developing seeds that will not germinate.



This is done by introducing a gene (inhibitor gene) into plant's genome, which inhibits germination by stopping the seeds to produce an enzyme, called Acyl-CoA Oxidase (ACOX), which is critical for successful germination of seeds. In the engineered seeds, the germination inhibitor is expressed by default, i.e., it is always in the "on position", thus, making the seeds unviable.

The inhibitor gene is counteracted by 'turning on' another gene (restorer gene) whose effects override the inhibitor and restore the natural capacity of the seeds to germinate. This gene, also introduced into the plant through genetic engineering, is linked to a chemically inducible promoter. Unlike the inhibitor gene, the restorer gene is set in the "off position" and does not function unless 'turned on' by application of the chemical trigger on the seeds before sowing or plants in the field.

Of course, application of the chemical inducer does not change the genotype of the plant, as it happens in case of Terminator I. The chemical inducer permits germination of the single generation of the seeds only to which it is applied. All subsequent generation seeds would also require the application of the proprietary chemical in order to germinate.

**Verminator II:** The technology as described in Zeneca's new plant killer patent is to develop plant varieties which must be exposed to the proprietary chemicals in order to germinate and grow properly. This could be done by inserting a gene into the arable plants, which produces a toxin (bamase enzyme) in the plant cells. The bamase gene is attached to a specific promoter called the cysteine protease promoter. The cysteine protease promoter is active during germination and growth of the plant. If the seed is not treated with the proprietary chemical, the promoter will be active and as a result of this, the seed will kill itself during germination or shortly thereafter.

The plant's suicidal tendency is being overcome by a disrupter gene. The disrupter gene is linked to an inducible promoter. The disrupter

gene, when turned on by application of proprietary chemical trigger, either blocks the action of the cysteine protease promoter or stops the bamase-producing gene itself. The disrupter gene is 'turned on' when the seed or plant is exposed to the proprietary chemical. The plant is, thus, chemical-dependent. The crop plants must be periodically exposed to Zeneca's proprietary chemicals in order to keep the disrupter gene active enough to prevent the production of the toxin.

The global agricultural research network : Established in 1971, headquartered at Washington, D.C. the CGIAR is an association of 42 countries (including India), international and regional organisations and private foundations devoted to sustainable agriculture and improving global food production. The CGIAR is a global network of 16 international Agricultural Research Centers (IARCs) distributed throughout the world which collectively form the world's largest public plant breeding efforts for resource-poor/marginalised farmers. One of the IARCs is located in India at Patancheru, Hyderabad, namely the International Crops Research Institute for semi-Arid Tropics (ICRISAT). The World Bank, the UNDP and the FAO are co-sponsors of this network. While the World Bank provides logistic and secretarial assistance, the Technical Advisory Committee (TAC) of the FAO provides the needed technical support to the CGIAR. The IARCs, sponsored by the CGIAR, are autonomous and non-profit organisations and apolitical in nature. The mandate of the CGIAR is to bring resources of modern biological and socio-economic research to bear on the problems of sustainable agriculture, improving agricultural productivity, etc., in the tropics and subtropics where most of the developing countries lie.

Dr. M. S. Swaminathan, an eminent agricultural scientist and the World Food Prize winner who chaired the CGIAR's Genetic Resource Policy Committee, presented the Anti-Terminator proposal to all the delegates in the meeting. It was agreed in the meeting that the CGIAR scientists

may retain the option to study the technology in the laboratory, but cannot introduce to any crop variety of commercial importance. It was indeed a courageous decision of the CGIAR to ban the technology for use in its crop breeding programmes. The CGIAR cites the following reasons for the ban:

- Importance of farm-saved seeds, particularly to the resource-poor farmers.
- Possibilities of sale or exchange of unviable seeds for planting.
- Potential risks of inadvertent or unintended spread of the gene through pollen.
- Potential negative impact on genetic diversity.
- The importance of selection and breeding, done by farmers, for sustainable agriculture.

**The concerns :** As mentioned earlier, the primary goal of using these technologies is to sterilise the seeds so that farmers cannot save and replant the seeds. "The notorious terminator patent is just the tip of the iceberg," says Pat Mooney, the Executive Director of the RAFI. He further explains that the technology is extremely dangerous because 1.4 billion farmers, primarily poor farmers, of Africa, Asia and Latin America depend on farm-saved seed as their primary source of seed. If they can not save seed, they can not continue to adopt crops to their unique environments and this spells disaster for global food security.

The main concern is that the gene may get transferred to other plants and crops through free pollen grains. It is likely that Terminator will kill the seed of the plants of the same species in the neighbouring fields, under certain conditions. How many seeds perish will depend on the degree of cross-pollination, and this is influenced by the species of plant, variety of the crop, weather conditions, how close the fields are associated to each other, etc. Even if only a few seeds die, they will contain the genes introduced into the terminator-protected variety. These new genes may make the seed unusable for certain purposes.

**The effect of toxins :** Will the seeds

containing terminator gene and its toxic product be safe to eat? In fact, the effect of the toxin, produced by terminator gene, on the seeds is a serious question. The toxin may not be directly poisonous for animals, but may cause allergic reactions. Will dead seeds have different properties than living seeds? Will the dead seeds be more or less easy to store? Perhaps they will respond differently to changes in humidity, or to microbial infections.

If tetracycline is used to treat the seeds to set the cascade of toxin-gene activation in motion, then there will be a lot of tetracycline to handle and dispose off, and large-scale agricultural uses of antibiotics have already been seen as a threat to their medical uses. Though, it is true that tetracycline has no direct effect on animals, such as human, the indirect effects can be severe. This is because we depend on a myriad of interactions with micro-organisms. Plants too depend on microorganisms. They do not function normally without a web of interactions, and the indirect effects of substances like tetracycline may prove to be serious.

Although, Terminator has been proposed as a method to prevent the escape of genes from Genetically Modified Organisms (GMOs), it is not likely to function well for such purposes. Terminator may be activated at a different time or in different parts of the plant. Fortunately, such events will be self-limiting, because the plants will not survive. The gene may prove to be "a biological time bomb" by gradually switching off the reproductive system of all major crops. Such gene gives an opportunity to be used as "a biological weapon" to have a firm grip over agrarian countries. Since western countries do not allow the multinational seed companies to conduct trials of transgenic crops on their land on the ground of health and security of crops, they move toward the developing countries to utilise them as platform for field trials of transgenic crops.

While momentum to ban genetic seed sterilisation technologies builds across the world

the United Nation's Convention on Biological Diversity (CBD) has given the green signal for the commercialisation of terminator and related technologies.

In stead of calling for a moratorium, the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) has given the decision which even restricts the right of countries to impose national bans on terminator gene.

The CBD was adopted in 1992 at the Rio Earth Summit and entered into force in December 1993 with 168 signatories, including India. The CBD was inspired by the world community's growing commitment to human-created sustainable development. It was a landmark step taken by the world community for the conservation of global and regional biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits (by the partners) arising from the use of genetic resources. But the CBD has betrayed by taking a large step backwards in its recent decision on Terminator and other related technologies. It calls Genetic Use Restriction Technologies (GURTs). The SBSTTA's decision in favour of terminator indicates that, perhaps the CBD is highly pliable to the commercial interest of a few rich countries i.e. the GURTs owners.

**Indian scenario :** Since more than seventy per cent of the Indian farmers use farm-saved seeds for replantation, it is necessary that law is made not only to save our rich biodiversity but also for the protection of "plant back seeds". According to Dr. M. S. Swaminathan "The Terminator gene could play havoc with the country's food security". The Indian Government will certainly regulate the entry of seeds having such a disastrous gene. Adequate technological and legislative measures have been initiated to ensure that terminator gene does not enter the country and the interests of Indian farmers and agriculture are fully protected.

The import of transgenic planting materials for research purpose will also be controlled and

will be allowed only through a single entry point which is the National Bureau of Plant Genetic Resources (NBPGR), New Delhi. The Indian Council of Agricultural Research (ICAR) and the Department of Biotechnology (DBT) is expected to develop suitable technology for detecting terminator genes in the imported plant materials. If foreign companies will be required to get special permission from the DBT for conducting any kind of research on introduction of the genes into germplasm in the country.

These are only a few potential snags which experts visualise in the use of these genetic seed sterilisation technologies. Of course, there are certain positive points associated with the invention and use of these technologies. Recently, small grain cereals such as wheat and rice were difficult to commercially hybridise. Lesser attention was given for the development of hybrid varieties in these crops. Now, the situation seems to be changing. The opportunity to force the farmers back to buy seeds every season and the availability of Terminator and Traitor technologies have led the multinational seed companies to focus on production of hybrid varieties of the crops.

**Conclusion :** Global rejection of terminator seeds is a timely decision. The decision taken by the CGIAR is appreciable and it is a right step for the right reasons. It reflects, in true sense, an autonomous, apolitical and international nature of the CGIAR. On the other hand, the decision taken by the SBSTTA on terminator, is probably a threat to the CBD's credibility. If adopted widely, terminator would make it impossible for farmers to save the seeds and breed their own crops.

Under the Trade Related Intellectual Property Rights (TRIPs) agreement, which is a part of the GATT, countries have right to ban patents like those for Terminator, Terminator and Traitor Technologies, on the grounds of public moral, food security and environmental concerns. These technologies are not acceptable under Indian conditions and government should take firm steps

combat the adverse implications of these technologies.

It is not only important to stop the entry of these genes into the country by putting strict regulations at the entry point, but it is equally important

to organise a mass awareness campaign and educational programmes to let the country people know the pros and cons of these technologies and allow them to take their own decisions on their use or non-use of these technologies.

## Ozone layer

### A timely reminder to protect the ozone layer

September 16 is observed as the 'International Day for the preservation of the Ozone layer'.

The day commemorates the signing of the Montreal Protocol in 1987 on substances that deplete the ozone layer and the international efforts to combat this problem. Also known as the International Ozone Day, it provides an opportunity to publicise the protection of the ozone layer and actions people can take to protect themselves from the health impacts of ozone depletion.

**Facts on ozone :** Ozone molecules exist in the upper atmosphere between 10 kms to 50 kms above the earth. This layer absorbs most of the harmful ultraviolet radiation from the sun, thereby acting as a protective shield for the earth. Depletion of this layer allows the harmful ultraviolet rays to reach the earth causing skin cancer, eye cataracts, reduced plant yields and damage to ocean ecosystem.

Ozone depleting substances (ODS) which damage the ozone layer includes chlorofluorocarbons (CFCs), halons and other substances widely used for refrigeration, air-conditioning, solvents, fire extinguishers etc.

**The Montreal Protocol :** In 1987, the UN drew up an environment treaty known as the Montreal Protocol. The salient feature of the protocol is that it set the elimination of ozone depleting substances as its final objective. The protocol came into force on January 1, 1989. 165 countries are parties to this protocol of which over 100 are developing countries. India signed the Montreal Protocol in 1992 and to honour this commitment, the Ministry of Environment & Forests have drafted regulations in 1998 with the objective of phasing

out production and consumption of chlorofluorocarbon and other ozone depleting substances.

**The Kyoto Protocol :** Notwithstanding the signing of the Montreal Protocol by many countries, scientists realised that tighter and more effective controls would be needed to not only protect the ozone layer but also the entire atmosphere. To include the wider aspects of protection of atmospheres, the Kyoto Protocol of the UN framework convention on climate change came into existence in December 1997 at Kyoto Japan. The Kyoto Protocol emphasises achieving the quantified emission limitations and reduction commitments by each party of the protocol in order to promote sustainable development. The protocol also emphasises that parties to the protocol shall individually or jointly ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases do not exceed their assigned amounts.

**UN warning on illegal trade in CFCs :** On the eve of World Ozone Day, the United Nations has warned that the increasing incidence of smuggling and trade in chlorofluorocarbons (CFCs) could seriously undermine efforts to eliminate the production and consumption of the ozone depleting substance. Experts say that the situation could get worse particularly in countries like China and India, as there are millions of users of individual CFC-based equipment and the smugglers could turn their attention to these markets in a few years. Developed countries like the US has been giving special training to its customs officials to detect CFCs being smuggled in and special CFC detectors have also been developed. ■■

# UNIVERSE AND THE SOLAR SYSTEM

## The Universe

The universe or 'Cosmos' as it was known earlier comprises space, matter and antimatter. The science which deals with the nature and motion of celestial bodies is called astronomy.

In the ancient times, the knowledge about the universe was vague and confined to mystery and religious perceptions. Subsequent studies by eminent astronomers have revealed some of its mysteries, however knowledge about the universe remains at large, some unanswered questions still baffling astronomers.

In 140 A.D. Claudius Ptolemy began the regular enquiry into space. He propounded the theory that the earth was the centre of the universe and the sun, the other heavenly bodies revolved around it. In 1543 Copernicus argued that the sun and not the earth was the centre of the universe. However, he still equated the universe with the solar system. Kepler supported Copernicus but said that the sun was the centre of the solar system and not the universe. In 1805 Herschel made it clear that the solar system was a part of a much larger system of stars called 'galaxy'. In 1925 Edwin P. Hubble pointed out that the universe actually consisted of millions of galaxies. These galaxies were receding and shifting due to the 'doppler effect' or 'Red shift' and the universe is in a state of rapid expansion.

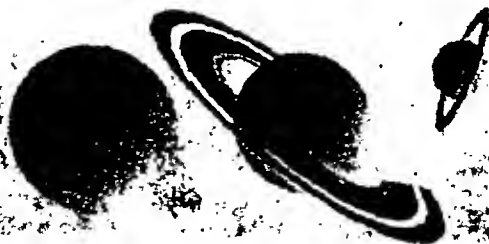
The big bang theory explains the origin of our universe. According to this theory 15 billion years ago, cosmic matter was in a compressed state from which expansion started by a primordial

explosion. The superdense ball broke to form galaxies which again broke to form stars and finally stars broke to form our planets including earth.

Since the outer space is limitless, conventional units for measuring their distances are not suitable, and new units like light year and Astronomical units are used. A light year is the distance covered by light in one year in vacuum travelling at a speed of  $299792.5 \text{ km per second}$ . The value of light year is  $5.88 \times 10^{15} \text{ miles}$ . On the other hand Astronomical unit represents the mean distance between the sun and the earth ( $1.495 \times 10^8 \text{ km}$ ). One light year is equal to  $63,241 \times 10^3 \text{ AU}$ .

**Galaxies :** These are huge clouds of stars that hold together by force of gravity. Milky way, Andromeda galaxy, Magellanic cloud, Ursa minor system, NGC etc. Milky way or spiral galaxy. The solar system completes one revolution around the sun which is called a 'galactic year'.

**Stars :** Stars are the most common objects in the universe. Some stars emit more energy than others. Such stars are called 'supernovae'. A star in this stage is called a 'supernova'. A star converts hydrogen into helium. Thus a star is said to be 'burning'. A star is depleted of hydrogen. This stage



From left to right Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto

The sun will turn into a 'Red Giant' in 5 billion years. 'Novae Stars' are stars whose brightness increases suddenly by 10 to 20 magnitudes due to explosion and then the stars again fade into normal brightness. 'Super Novae' are stars whose brightness suddenly increases by more than 20 magnitudes. After the explosion, the dense core of comparatively smaller stars is called the 'white dwarf'. The dense core of the comparatively larger stars is called the 'Neutron star'. The neutron star rotates at a high speed emitting radio waves. Such stars are called 'Pulsar'. Black hole's stage of the star occurs when the ancient star collapses. Gravity becomes so intense in the hole that nothing escapes, even light. This dark object is thus called a 'Black hole'.

## The Solar System

The sun along with its nine planets, asteroids and comets comprise the 'solar system'. The planets are divided into inner or terrestrial planets which have higher densities e.g. mercury, venus, earth, and mars and outer planets which have lower densities e.g. jupiter, saturn, uranus, neptune and pluto.

**The Sun :** It is one of the stars in the milky way. It takes 250 million years to complete one revolution round its centre. This period is called 'Cosmic year'. The sun is 109 times bigger than the earth and weighs  $2 \times 10^{27}$  tonnes. The light from the sun reaches earth in about 8.3 minutes. The sun is mainly composed of hydrogen. The glowing surface of the sun which we see is called 'photosphere'. Above the photosphere is the red

coloured 'Chromosphere'. Beyond the chromosphere is the 'corona', which is visible during eclipses. The temperature of the photosphere is about 6000°C, that of the chromosphere about 32400°C. and that of the corona about 2,700,000°C. The core of the sun has a temperature about 15 million degrees K. The dark lines in the corona are called 'Fraunhofer lines'. The emission of hydrogen in all directions is called 'prominences'. Sometimes they roll out of the atmosphere to be seen as 'solar flares'. The outward stream of protons flowing out from the corona are called 'solar winds', which is made up of plasma. The earth's magnetosphere or Van allen belts as they were earlier called, acts as a shield and deflects the solar winds. 'Sun spots' are dark patches notched on the surface of the sun. They appear dark because they are cooler i.e. they have a temperature of about 1500°C. The 'Aurora Borealis' or northern lights are multicoloured lights that sweep across the sky in waves and are visible in the arctic region. The 'Aurora Australis' or southern lights are similarly visible near the Antarctica region.

**The Moon :** The moon is the only satellite of the earth. Its size is approximately one-fourth that of the earth. It has a diameter of 3475 km. Its orbit is elliptical. The maximum distance (apogee) of the moon from the earth is 406,000 km and the minimum distance (perigee) is 364,000 km. It takes 27 days 7 hours and 43 minutes to rotate on its axis. It takes 27 days and 43 minutes to revolve around the earth. This is why we see only one side of the moon. The bright part of the moon are

Members of solar system	Diameter (km)	Revolution period (days)	Rotation period (days)	Equatorial Diameter	Density (water = 1)	Satellites	Axial Inclination (Earth = 1)
Sun	1,390,000	...	25.40	109,000	1.42	...	...
Mercury	4,980	88	88.00	0.370	4.80	0	7°
Venus	12,400	225	225.00	0.95s6	4.85	0	3.5°
Earth	12,750	365	1.00	1.000	5.52	1	23.5°
Mars	6,800	687	1.03	0.532	3.95	2	2°
Jupiter	142,000	4333	0.41	11.200	1.33	16	1°
Saturn	119,200	10759	0.43	9.050	0.69	23	2.5°
Uranus	51,600	30686	0.45	3.700	1.36	12	0°
Napture	44,600	60188	0.66	3.500	1.30	2	2°
Pluto	5,800	92611	6.40	0.500	...	1	17°

mountains whereas the dark patches are low-lying plains. The highest mountain in the moon is Liebnitz mountain which is 10,660 m high. The moon has no atmosphere, no twilight, and no sound. The temperature during daytime is about 100°C and during night it drops down to about -180°C. The light from moon takes 1.3 seconds to reach the earth.

**Asteroids :** Asteroids are a series of very small planets or fragments of planets lying between the orbits of mars and jupiter. They number about 45,000. 'Ceres' whose length is about 1000km is the largest. They revolve around the sun in the same way as the planets.

**Comets :** It is believed that comets were formed from the remaining material that was left during the formation of the outer planets. A comet consists of three parts i.e. centre, coma and tail. The central portion consists of dust particles. Its tail originates only when it gets closer to the sun. In 1997, the Hale bopp comet was clearly seen from the earth. It was bigger than the Halley comet.

**Meteors and Meteorites :** The meteors are probably the remains of comets which are scattered in the interplanetary space of the solar system. On contact with the earth's atmosphere, they burn due to friction. Those which completely burn out into ash are called meteors or 'shooting star.' Those which do not burn completely and strike the earth in the form of rocks are called 'meteorites'. One such meteorite, the Allan hills 84001, has thrown up light on the possibility of life on mars.

## The Planetary System

**Mercury :** It is the nearest planet of the sun. It has no atmosphere and no satellites. Its days are scorching hot and nights are frigid.

**Venus :** It is the nearest planet of the earth. It is also called the 'morning' or 'evening star'. It is most probably the hottest planet. The day and night temperatures are almost the same. Its atmosphere contains 90-95% carbon dioxide. Greenhouse effect is seen in this planet. The atmospheric pressure is 100 times that of the earth. It has no satellite. Due to its similarity with earth in respect of size and mass, it is also called 'earth's twin'.

**Mars :** It is a shining planet having two satellites named Phobos and Deimos. It has a thin atmosphere comprising of Nitrogen and Argon. It is marked with dormant volcanoes and deep chasms where once water flowed. The highest mountain here is named Nix Olympia which is three times higher than mount everest. It is also called the 'Red planet'. Recent explorations have thrown light on the possibility of existence of life here.

**Jupiter :** It is the largest planet of the solar system. Its atmosphere contains hydrogen, helium, methane and ammonia. It reflects more than three times the energy it receives from the sun. It has the great red spot which is an enormous eddy in the turbulent cloud cover. It also contains dust rings and volcanoes. It has 16 satellites like Ganimead, Aayo, Europa, Callisto etc.

## UNIVERSE AND THE SOLAR SYSTEM

**Saturn :** The golden giant saturn has celestial rings composed of thousands of rippling, glistening bands just 100 feet thick. Its moon, Titan has nitrogen atmosphere and hydrocarbons, the possibility of life but no life exists. Its main satellite among the 21 are phobe, Tethys, mimas etc.

**Uranus :** There are 9 dark compact rings around this planet and a corkscrew shaped magnetic field that stretches for million of miles. Its atmosphere contains methane. It is the only planet where one pole or the other faces the sun as it spins. It has 15 satellites, the prominent ones are Ariel, Umbriel, Titania, Oberon, Miranda etc.

**Neptune :** There are five rings of Neptune. The outer ring seems studded with icy moonlets and the inner ring appears narrow and nearly solid. It has 8 satellites like Triton, Merid, N-1, N-2 etc. Till 1999 it was the most distant planet from the sun replacing Pluto.

**Pluto :** It is the smallest, darkest and coolest planet. It follows the most elongated and tilted orbit in the solar system. This is why Neptune will remain the farthest planet from the sun till 1999. It is shrouded in frozen nitrogen which makes 78% of its air.

**Eclipses :** An eclipse, solar or lunar occurs when the shadow of another body obscures the light from a celestial body. Eclipse occurs when the sun, moon and earth are in a straight line. A solar eclipse occurs between sunrise and sunset. A lunar eclipse occurs when the moon passes directly in front of the sun so that its shadow lies on the moon. In other words, the moon lies between the sun and the earth. Solar eclipse occurred on 24th August 1995. The 'lunar eclipse' takes place when the earth comes in between the sun and the moon so that the shadow of the earth is cast on the moon.

A lunar eclipse takes place on a full moon. Usually a total of seven eclipses including solar and lunar eclipses takes place every year.

### Motions of the Earth and their Effects

The earth has two main motions - (i) Rotation and (ii) Revolution.



**Rotation :** The earth rotates around its axis. The axis is an imaginary line passing through the centre of the earth. The earth completes one rotation in 24 hours (23 hours, 56 minutes, 4.09 seconds to be exact). The earth rotates from west to east.

### Effects of the Rotation of the Earth

- (i) Causation of day and night
- (ii) A difference of 1 hour between two meridians which are  $15^\circ$  apart.
- (iii) Deflection of ocean currents and winds
- (iv) Rise and fall of tides every day

**Revolution :** It is earth's motion in its elliptical orbit around the sun. One revolution is completed in  $365 \frac{1}{4}$  days, resulting in one extra day every fourth year. The year, consisting of 366 days is called the 'leap year' having 29 days in the month of February.

### Effects of the Revolution of the Earth

- (i) Change of seasons
- (ii) Variation in the lengths of day and night at different times of the year
- (iii) Shifting of wind belts
- (iv) Determination of latitudes

**Perihelion :** The position of the earth or any other planet in its orbit when it is at its nearest point to the sun.

The earth reaches its perihelion about 3rd January at a distance of about 147 million Km from the sun. At the other extremity of the major axis of the earth's elliptical orbit, the axis being called **Apsides line**.



**Aphelion :** The position of the earth or any other planet in its orbit when it is at its greatest distance from the sun.

The earth reaches its aphelion on 4th July when the earth is at a distance of 152 million km. near the other extremity of the major axis.

**Apogee :** The point in the orbit of the moon or of a planet or in the apparent orbit of the sun, when it is nearest to the earth.

**Latitude :** Latitude of a place on the earth is a angular distance of the place from the equator.  $10^\circ$  of latitude is approximately equal to 110 km.

**Parallels of latitude :** They are circles drawn on the globe parallel to the equator. All the places on a parallel of latitude will have the same latitude angle.

## Important Parallels of latitude

1. Equator ( $0^\circ$ )
2. Tropic of Cancer ( $23\frac{1}{2}^\circ\text{N}$ )
3. Tropic of Capricorn ( $23\frac{1}{2}^\circ\text{S}$ )
4. Arctic circle ( $66\frac{1}{2}^\circ\text{N}$ )
5. Antarctic circle ( $66\frac{1}{2}^\circ\text{S}$ )

## Important Zones of the Earth

- (i) Torrid (Tropical) -  $23\frac{1}{2}^\circ\text{N}$  to  $23\frac{1}{2}^\circ\text{S}$
- (ii) North Temperate -  $23\frac{1}{2}^\circ\text{N}$  to  $66\frac{1}{2}^\circ\text{N}$
- (iii) South Temperate -  $23\frac{1}{2}^\circ\text{S}$  to  $66\frac{1}{2}^\circ\text{S}$
- (iv) North Frigid (Arctic region) -  $66\frac{1}{2}^\circ\text{N}$  to  $90^\circ\text{N}$
- (v) South Frigid (Antarctic Region) -  $66\frac{1}{2}^\circ\text{S}$  to  $90^\circ\text{S}$

**Longitude :** The longitude shows the distance of a point east or west of the Prime Meridian which is at  $0^\circ$  and passes through Greenwich, near London, U.K. For each degree of longitude there is a difference of four minutes in time and when one crosses the International Date Line one loses or gains a day.

**Meridian through a place :** The great circle on the globe passing through that place and the North and South poles.

**Greenwich Mean Time :** The local time at Greenwich or any place on the Prime Meridian.

**Standard Time :** A particular meridian of

longitude passing through a country is chosen as the reference meridian. The local time along that meridian, calculated with respect to Greenwich Mean Time in terms of its longitude is taken as the Standard Time for that country.

**Indian Standard Time :** Time along  $82\frac{1}{2}^\circ\text{E}$  meridian of longitude, calculated with respect to G.M.T. India, for such a large country, is unusual in having a single time zone all over the country. It is  $5\frac{1}{2}$  hours faster than G.M.T.

**International Date Line :** An imaginary zigzag line on the globe, approximately along  $180^\circ$  meridian of longitude. When a person crosses this line from East to West, he gains one day; when he crosses from West to East, he loses one day.

**Solar Day :** It is the time interval between successive crossing of the sun across the meridian of the celestial sphere of any fixed place in the same direction. This is equal to 24 hours.

**Sidereal Day :** The period of rotation of the earth about its axis. This is calculated with respect to any fixed star. It is 4 minutes less than 24 hours.

**Solar Year (Tropical year) :** It is the average interval between successive return of the sun in its apparent motion along the ecliptic to a fixed position on the celestial sphere of any fixed place. This is equal to 365.24 mean days.

**Sidereal Year :** The period of revolution of the earth around the sun. It is calculated with reference to any fixed star. It is approximately equal to 365.26 days.

To account for  $\frac{1}{4}$  of a day in a year, the leap year system is adopted in the Gregorian Calendar. To account for the excess of 11 minutes in a year, the centennial year is considered a leap year only when it is divisible by 4.

**Solstice :** Solstice is one of the two days in the year on which the sun reaches greatest altitude north or south of the equator and is directly overhead along one of the lines of tropics.

**Summer Solstice :** On June 21, the

is so located in its orbit that the sun is overhead on the Tropic of Cancer ( $23\frac{1}{2}^{\circ}\text{N}$ ). The northern hemisphere is tipped towards the sun having the longest day, while the southern hemisphere is tipped away from the sun having the shortest day.

**Winter Solstices :** On December 22, the earth is in an equivalent position on the opposite points in its orbit, so the southern hemisphere is tipped towards the sun and the northern hemisphere away from it. The sun is overhead on the Tropic of Capricorn ( $23\frac{1}{2}^{\circ}\text{S}$ ), resulting in the shortest day in the northern hemisphere.

**Equinoxes :** Two days in a year when day and night are equal throughout the world are equinoxes. Falling midway between the dates of Solstices, on these dates, the earth's axis lies at  $90^{\circ}$

to the line joining the centres of the earth and the sun and neither the northern nor the southern hemisphere is inclined towards the sun. The 'vernal equinox' occurs on March 21 and it is also called the spring equinox in the northern hemisphere, while the 'autumnal equinox' occurs on September 23. On these two days every place on the globe experiences 12 hours daylight and 12 hours darkness. The sun rises due east and sets due west and is seen directly overhead on the equator.

**Midnight Sun :** A phenomenon observed in the Arctic and Antarctic zones around mid-summer, when the sun does not sink below the horizon throughout 24 hours of the day and therefore, may be seen at midnight. This is the direct consequence of the inclination of the axis of the earth to the plane of the orbit. Norway is the place of mid-summer sun where the sun is continuously visible between May and July. In the Southern hemisphere, the phenomenon is seen in the Antarctica.

**Antipodes :** Two places situated at the extremities of any diameter of the earth. To be antipodes, two places should have the same latitude angle, one N and another S. Their longitude should differ by  $180^{\circ}$ . The antipodal region of India is in the Pacific region near Easter Island.

**Pole star :** it is a fixed star, towards which

## Plate tectonic

A widely accepted theory that suggests the lithosphere consists of a number of rigid plates. They move on the partially molten asthenosphere. Seven major lithospheric plates are recognized, together with numerous minor ones. Continental drift is thought to result from the movement of these plates. Three types of plate boundary have been distinguished:

(a) **Constructive or Divergent boundaries :** they result when Sea-floor spreading causes the formation of new lithospheric rocks and the gradual divergence of plates. Constructive boundaries are found at the mid-oceanic Ridges in the Pacific, Atlantic and Indian Oceans. The rate of divergence may be up to 9 cm per year.

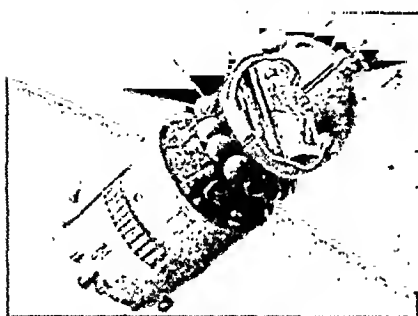
(b) **Destructive or Convergent boundaries :** They occur when plates move towards each other. One plate is overridden and forced downwards into the mantle to form a zone of subduction. Mountain formation due to intense folding, earthquakes and volcanic activity are usually associated with destructive boundaries. A destructive boundary is thought to exist along the west coast of South America.

(c) **Conservative or Shear boundaries :** They develop when plates move parallel to each other along transform faults. Lithospheric rocks are neither formed nor destroyed along conservative boundaries. The San Andreas Fault in California, USA, is a conservative boundary.

Along divergent boundaries in the Red Sea area, upward moving convection currents in the mantle have led to the emplacement of major deposits of gold, silver, copper and iron ore. Other divergent boundaries are now being prospected for similar deposits.

the North of the earth's axis is always pointing despite the rotation and revolution of the earth. The altitude of the pole star at a place in the Northern hemisphere gives the latitude of the place. Pole star can not be seen in the Southern hemisphere of the earth ■■

# SPACE TECHNOLOGY



Space research has always been a challenge for both man and the science. The initial emphasis was on exploration of the unknown and development of space probes and related systems but gradually space applications became very important in a wide range of areas. Space the region beyond the earth's tangible atmosphere, 160 km from the surface first became accessible to man when "Sputnik-I" was put into orbit by the former USSR in October 1957. In "Sputnik-II", launched by Russia a dog Laika was sent in the space. The physiological examination of Laika revealed that human being might also survive prolonged period in space. In January 1958, the National Aeronautics and Space Administration (NASA) of USA launched "Explorer-I" satellite in space. The major contribution of Explorer-I mission was the discovery of the Van Allen radiation belts around the earth where electrons and protons from the sun are trapped by the Earth's magnetic field. Far side of the Moon's glimpse in the history of mankind was observed from the Russian satellite "Luna-III" in October 1959. April 2, 1961 was a landmark in history when the first ever manned spacecraft, "Vostok-I", was injected in the space and an Russian cosmonaut Yun Gagarin became the first person to travel in the space. On June 16,

1963 Valentina Tereshkova, a Russian Cosmonaut was registered as the first women in the world to travel in the space and to stay in orbit for up to five days through the "Vostok-VI" spacecraft.

In 1960s the space science widened its nature and scope. Now the space scientists concentrated their studies around the exploration of other celestial bodies like the Moon, Venus and Mars. The US "Mariner-II" in 1962 flew past the planet Venus and calculated its temperature and its reverse direction of rotation. In 1965 "Mariner-I" sent back clear photographs indicating craters on Mars. American astronauts made more manned flights in their smaller Mercury spacecraft. In 1968 USA launched the Gemini-series programme for the preparation of Apollo mission to the Moon. On December 21, 1968 a landmark in history was created when the first manned voyage to the Moon took place by an American spacecraft "Apollo-8" which orbited the Moon 10 times and returned safely to the earth. July 21, 1969 was a memorable day in space history when four legged Lunar Module of "Apollo-11" landed on the surface of the Moon along with US astronauts Neil Armstrong and Edwin Aldrin. Neil Armstrong was the first person to set foot on the Moon. Both the astronauts walked on the surface of the Moon for some times and gathered some samples from the surface. During the Apollo Mission a total of 12 American Astronauts walked on the Moon and brought back about 375 kg. of rocks and soil from the Moon's surface. They were instrumental in calculating the gravitational force on the Moon's surface, its escape velocity, topographical features, atmosphere and some others related phenomena.

In 1970s space scientists developed the capability to establish permanent space exploration centre and established the Skylab & Salyut space stations. They were involved in analysing

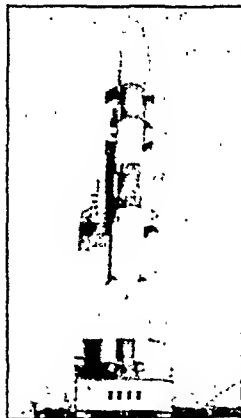
the effects of microgravity on the various materials, investigating the Earth's surface, or study the stars and other solar planets. They carried out survey of Earth resources. They searched the possibility to take advantage of the conditions of weightlessness and the total vacuum to develop new manufacturing process. It was visualised that perfect crystals could be grown for use in electronics such as transistors in the total vacuum condition. Further, the materials that do not mix under gravity, for example oil and water, do so in weightless condition. Their research revealed that some types of alloys, which are not possible to be formed on the surface of the earth, could be formed in space condition. In the field of Microbiology new lights were thrown like the growth of cell in weightless conditions and their division, physiological change and the possibility of survival of mankind in space including on the surface of the Moon.

In 1977 the first shuttle "Enterprises", which was a modified form of 747 jumbo jet along with a rocket launcher, was injected into space by NASA. The shuttle carried the orbiter into the air and back on several flights and released it in midair

on several more the shuttle's first orbital mission began on April 12, 1981 when "Columbia" was launched. In June 18, 1983 the shuttle "Challenger" was sent into space which took Sally Ride, the first US-women to space. In April, 1984 the major achievement in space technology was created when the satellite Solar Max was successfully repaired and the astronauts walked in space for as long as 6 hours and 44 minutes. But the American space mission received a setback when the Challenger shuttle exploded in midair. However this setback did not marred the space mission progress when the shuttle Discovery was successfully launched into space in September 1988. In March 1989 the space shuttle "Atlantis" launched a spacecraft on the voyage to Venus. In October 1990 the US shuttle Discovery again launched the scientific spacecraft Ulysses into space in order to probe the polar region of the Sun.

In February 1986 a major landmark in space history was achieved when the third generation space laboratory Mir was launched into space. It joined the Salyut-7 space station. Mir is a multi modular station which can accommodate six

### PSLV-C<sub>2</sub>



On May 26, India achieved another milestone in space when the country's first ever multiple satellite launch was a spectacular success. The PSLV-C2 rocket launched three satellites into a low earth orbit. The 44.4 metre tall rocket weighing 294 tonnes soared into the sky carrying three payloads- Indian remote sensing satellite IRS-P4, the German Tubsat and the South Korean Katsat. The successful launch of IRS-P4 (OCEANSAT 1) will significantly contribute to the ocean observation systems of the Department of Ocean Development (DOD) and promote oceanographic studies in the country. The coastal zone is a highly productive area and the thrust is towards the development and use of ocean science and technology in exploration and sustained utilisation of the marine resources for the socio-economic benefit of society. OCEANSAT will be immensely useful in this regard. IRS-P4 has two payloads namely the Ocean Colour Monitor and Multi Frequency Scanning Microwave Radiometer (MSMR). The potential applications of OCM will be identification of potential fishing zones in the sea, algal blooms, study of sediment dynamics, determination of shore line changes, marine pollution

besides oil slicks. The other payload MSMR (Multi Frequency Scanning Microwave Radiometer) works on the principle of collecting radiation in microwave bands from the Earth's surface which will help in obtaining information on water vapour and cloud liquid water in the atmosphere, seas surface wind speed and sea surface temperature of the ocean surface.

## Satellite launches from Sriharikota

Date	Satellite	launcher
August 10, 1979	Rohini	SLV-3
July 18, 1980	Rohini	SLV-3
May 31, 1981	Rohini	SLV-3
April 17, 1983	Rohini	SLV-3
March 24, 1987	SROSS-A	ASLV-D1
July 13, 1988	SROSS-B	ASLV-D2
May 20, 1992	SROSS-C	ASLV-D3
Sept 20, 1993	IRS- 1R	PSLV-D1
May 04, 1994	SROSS	PSLV-D4
Oct 15, 1994	IRS- P2	PSLV-D2
March 21, 1996	IRS- P3	PSLV-D3
May 26, 1999	IRS- P4	PSLV-C2

spacecraft at the same time. The Soviet Union joined the era of space shuttles in November 1988, when its first reusable shuttle "Buran" was launched on the world's most powerful booster rocket "Energy".

The Ulysses space mission, undertaken jointly by the European Space Agency and NASA was launched in October 1990 to explore regions of space above the poles of the sun. Observations made by the spacecraft have led to several major discoveries concerning the physical properties of the region and thus have contributed to a better understanding of the solar atmosphere. Of particular importance are the discoveries on the structure of the space medium in the heliosphere and its properties, nature and region of solar wind and the access of cosmic rays into the solar system. Sudden changes in the solar winds cause large disturbances in earth's magnetic field. Ulysses is also expected to resolve doubts over origin of solar activity cycle. The cycle initiates changes in solar winds, solar atmosphere etc. the Ulysses spacecraft is expected to return to the solar poles in 2000- 2002 AD when the sun activity cycle will be at its peak.

The solar and heliospheric observatory (SOHO) was sent into space in December 1995 by US- European collaboration and is currently in an orbit from where it can permanently observe

the sun. It has discovered jets of omission from the sun that tell of violent action on the star, although it is currently in a quiet phase. In December 1995, a 338 kg. probe release from the Galileo spacecraft entered Jupiter's atmosphere on a suicide mission and began sending back data. In November, 1995 the first of three big European science missions blasted off from French Guiana on a Ariane-4 rocket whose Infra-red Space Observatory (ISO) will search the universe for clues to the birth of planets and sun.

NASA announced on November 4, 1997 that the Mars Pathfinder which had been on the red planet from July 4, 1997 was no longer operational. It was announced in early October 1997, that the Mars Global Surveys (MGS) spacecraft had found numerous magnetic anomalies in the red planet's crust that could provide clues about Mars' past, sending a spacecraft on a two-year voyage to investigate the red planet. A 30 meter M-V rocket, carrying the Mars orbiter- Planet-B Craft, lifted off from Kagoshima Prefecture in south-west Japan.

On October 15, 1997, The Titan-4B launch vehicle, carrying the Cassini and Huyens space proper, blasted off at the Cape Canaveral Air Force Station, Florida, to begin a seven year voyage to Saturn and its biggest moon, Titan. The probes should reach Saturn almost 20 years after the first flight over the "ringed planet" by the Pioneer-11 and Voyager 1 & 2 probes.

## Indian space programme

Indian's march in space is marked by an impressive array of achievements in the mastery of modern space technology and its various applications for the benefits of society. The primary objective of the Indian Space Programme is to establish operational space services in a self-reliant manner. The main thrusts of the programme are the satellite-based resources survey and management & environmental monitoring; satellite-based communications for various applications; meteorological applications; and development and operationalisation of indigenous satellites, launch

vehicles and associated ground regment for providing these space-based services the indigenous development of application satellites, their payload and the capability to launch and operate these satellites, their payload and the capability to launch and operate these satellites are integral to these objectives. To realise these objectives, ISRO activities are oriented predominantly towards the design and development of application satellites for communications, remote sensing, television broadcasting and meteorology; design and development of satellite launch vehicles to place these application satellites into the required orbits; and the establishment and operation of ground station facilities for launching and wing these facilities.

**Infrastructure :** The ISRO Council and the ISRO Headquarters at Bangalore provide the overall guidance and direction to the scientific, technical and managerial tasks. Programmer offices in specialised areas function as a part of the central Management at ISRO HQ. the prime ISRO establishments are :

1. Vikram Sarabhai Space Centre (VSSC) , Trivandrum : Responsible for development of rocket launch vehicles.
2. SHAR Centre, Sriharikota : A launch complex and production centre of propellants.
3. ISRO Satellite Centre (SAC), Bangalore : Responsible for spacecraft mainframe development.
4. Space Application Centre (SAC), Ahmedabad : Main centre for space application and development of spacecrafts payloads.
5. Auxiliary Propulsion System Unit (APSU), Bangalore & Trivendrum : Develops Propulsion control packages for launch vehicles and spacecrafts.
6. Development and Educational Communication Unit (DECU), Ahmedabad Produces development and educational television programmes
7. ISRO Telemetry, Tracking & command Network (ISTRAC) : Consists of five ground stations located at Sriharikota Kovalam, Trivandrum, Car Nicobar and Ahmedabad with headquarter of Bangalore. Its Satellite Control

### Satellite remote sensing to the rescue

Satellite remote sensing will, in future come to the rescue of wildlife management. Apart from collecting data on the state of wildlife the information will also improve the quality of life. Two scientists from the Regional Remote Sensing Service Centre, Kharagpur, have proved that satellite data can be used to trace for example the movement of wild elephants. In a study paper titled 'Image and shape analysis', they showed that the satellite remote sensing data can be of great help in quick assessment and real time monitoring of existing natural resources and wildlife management. They also said that the integration of various data bases provides insights for tackling the problems caused by migration.

Centre (SCC) is located of Bangalore.

8. National Remote Sensing Agency (NRSA), Hyderabad . A grants-in-aid autonomous registered society under the Department of space for utilising the potential of remote sensing mainly in the context of natural resources survey.

satellite in its orbital phase, to set up ground-based receiving, transmitting and tracking systems and to establish infrastructure for the fabrication of spacecraft systems.

**Bhaskara :** Bhaskara-I, India's first experimental earth observation satellite, was concerned with the main objectives to conduct earth observation experiments, to collect, process, analyze and disseminate data of relevance to hydrology, forestry and geology using two television wave lengths and study ocean-state liquid water content in the atmosphere. A number of remote sensing experiment in the areas of forestry, geology, snow cover, etc. were performed using the data from Bhaskara-I. After completing the mission objectives, Bhaskara-I was shut down in March 1981.

A slightly improved version of Bhaskara-I viz. Bhaskara-II was launched on November 20, 1981. The experience gained from Bhaskara Missions is of importance in the context of operational remote sensing satellites of the future.

**APPLE (Ariane Passenger Payload Experiment) :** India took an important step in acquiring the technology for building communication satellites when works on a three-axis stabilised geosynchronous experimental communications satellites called APPLE was initiated. APPLE was launched by the European Space Agency (ESA) Ariane Launcher on June 19, 1981 from Kourou, French Guyana. After the prescribed life of two years in orbit. The satellite was switched off on September 19, 1983.

**Rohini Satellite (RS-1) Series :** The first RS-1 satellite was injected into an elliptical orbit 600 km.  $\times$  900 km with a time period of 97 min. by the second experimental flight of SLV-3 on July 18, 1980. The satellite provided data on the fourth stage performance and ranging for which it was intended. The second RS-1 satellite (RS-1) was flown on the first development flight of the SLV-3 on May 30, 1981. The last in the RS-1 satellite (RS-D2) was orbited by the second development version of the SLV-3 launched on April 7, 1983.

**Stretched Rohini Satellite Series (SROSS) :** The SROSS project envisages the development of spacecraft of 150 kg class for launch on the Augmented Satellite Launch Vehicle (ASLV) and in orbit operations of spacecraft and experimental payloads pertaining to the scientific technological and remote sensing missions. Both 3-axis stabilised and spin-stabilised configurations are being considered.

USA and the former USSR have been providing launching facilities for Indian satellites.

**Experiment SITE :** The Satellite Instructional Television Experiment (SITE), conducted during 1975-76, using the USA's Application Technology Satellite (ATS-6), is hailed as one of the largest experiment of its kind. SITE demonstrated the potential of satellite technology as an effective mass communication media for a developing countries like India.

**STEP :** Satellite Telecommunication Experiment Project (STEP) conducted during 1977-79, using the Franco-German Symphonie Satellite, provided a system test of geo stationary satellite for domestic telecommunication and gave experience in designing and building ground segment facilities.

**APPLE Utilisation Programme :** This project carried out jointly by ISRO and Ministry of Communication dealt with the conduct of experiments using advanced communication techniques. A number of application oriented experiments in collaboration with various user agencies were conducted and these included computer interconnection voice and data communications during emergencies and disaster situations.

## Operational space services

**INSAT System :** The Indian space programme entered into the operational phase in providing vital services to the nation with the commissioning of the multipurpose geo stationary INSAT-1B satellite in August 1983 for domestic telecommunication, TV-Broadcasting and meteorological application. INSAT is a joint venture of the Department of Telecommunications, India

eteorological Department, All India Radio and Jodharshan. The first generation INSAT satellites which were procured from abroad carry 12 C-band telecommunication transponders, two high power S-band TV broadcast transponders, a very high resolution radiometer (VHRR) for meteorological data relay transponders for relay of meteorological, hydrological and oceanographic data from unattended land and ocean-based platform.

INSAT-1A was launched on June 12, 1990 aboard the VS-Delta 492 launch vehicle, is continuing the services of INSAT-1B, which completed design life of seven years in August 1990.

The second generation INSAT-2 satellites are being built indigenously. These have 50 per cent higher capacity and better capability as compared to the first generation INSAT satellites. The first indigenously built second generation multi-purpose geostationary satellite INSAT-2A, weighting 1906 kg, lifted off was successfully launched by the Ariane launch vehicles on July 10, 1992 and put into operational use on August 6, 1992. The satellite is located at 74 degree east longitude in the geostationary orbit, about 3600 km. above the equator. INSAT-2B was launched by the Ariane launch vehicle from Kourou, French Guyana, on May 23, 1993. The launch window was determined mainly by restrictions on maximum allowable launch angle resulting from spacecraft solar power constraints and the minimum duration. The Ariane launch vehicle placed the INSAT-2B spacecraft into the Standard Ariane Geostationary Transfer Orbit with a perigee altitude of about 200 km. and apogee altitude of 35876 km.

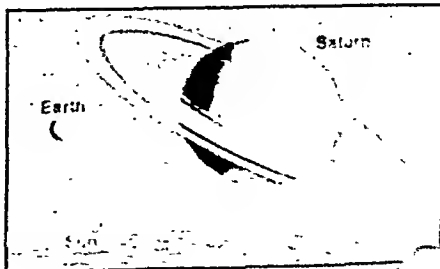
Work on the fabrication of the three satellites, INSAT-2C, 2D and 2E has been made satisfactory progress during the year 1993-94. The INSAT-2C/2D satellites have the different complements of payloads like 12 C-band transponders, 6 extended C-band transponders, 3 Q-Bands transponders, one S-band BASS transponders. INSAT-2C, the 14.6m. long, 2050 kg satellite which is the heaviest Indian communication satellite, was successfully launched by the Ariane space

## Discovering Mars

On January 4, the National Space and Aeronautics Administration (NASA) launched the ambitious Mars Polar Lander from the Kennedy Space Centre at Cape Canaveral, Florida, USA. It is expected to touch down on Mars on December 3, 1999 after releasing a set of two mini-probes called Deep Space-2 which will be embedded themselves into the Martian terrain. Earlier, on December 11, 1998 NASA had launched the Mars Climate Orbiter which will start orbiting Mars on September 23, 1999 and study the Martian seasons and search for traces of water on the Red Planet.

Once on Mars, the Polar Lander will, with the help of a robot arm, collect rocks and soil samples and search the soil for water. The information gathered by the Mars Polar Lander and Mars Climate Orbiter is expected to provide a greater understanding of the history of water on Mars.

INSAT-2C was launched by the Ariane rocket at 4.53 a.m. (IST) on December 7, 1995 from Kourou island in French Guiana. It has been placed in a circular geostationary orbit. The Master Control Facility (MCF) at Hassan about 180 km. from Bangalore would be controlling and commanding the satellite for the next 10 years, unlike the INSAT-1 series which was designed by the Indian Space Research Organisation but built by Ford Aerospace. INSAT-2 satellite have been designed and built by ISRO. INSAT-2C is the third in the indigenously designed and fabricated INSAT-2 series of satellites. INSAT-2C has been lodged just next to INSAT-2B, separated by 0.05°-0.1° which at the orbit height translates to a distance of 35-70 km, so that for a ground station





the two together appear as one big satellite. In technical terms this is called "Co-location". The co-location of both the satellites at 93.5° E has become necessary because of congestion to that height with over 160 geo-stationary satellites in orbit. With INSAT- 2C, which is expected to have a life of 10 years, operation with co-located satellites will be the first ever for the Indian space programme. Unlike the earlier INSAT-1 series, the INSAT-2 satellite folded solar panels do not have to be partially diploid to produce enough power for on board systems. Unlike INSAT-2A and 2B INSAT-2C is symmetric in north-south direction because it does not carry a meteorological payload. The solar panels thus stretch out symmetrically on either side. This enabled deployment of INSAT 2C by a very simple sequence of operations. INSAT - 2C has 24 transponders. The three Q- band transponders will be used for business communication in the four metropolitan cities. The Q-band's advantage is that a small dish just one and a half feet wide is adequate to receive and send signals. The two high power C-band transponders are for beaming television programmes to a large number of countries stretching from north-east Africa, Central Asia through the Gulf region to south-east Asia. The S-band transponders for Mobile Satellite Service (MSS) introduced for the first time, has open a new chapter for cargo and shipping industry, enabling them to communicate while on the move the coverage of this beam is wider in order to provide the services over India and over maritime zones around India.

INSAT-2D, India's home-built and most advanced communication satellite, was declared abandoned on October 5, 1997. The Rs 362-crore spacecraft, already crippled by a short circuit and power storage since October 1, 1997 lost earth lock for a second time and in spite of the hectic efforts by scientists could not be set right. The spacecraft became inoperable by October 4. The nation's most advanced second-generation satellite, which lasted exactly four months since its launch on the European Ariane-4 rocket from

Kourou, French Guyana, on June 4, 1997 had 12 transponders. Only seven of them had been made operational and three were on when the 2D finally blinked out.

India recently acquired an Arabsat-1C satellite. The INSAT Co-ordination committee has formulated guidelines to shift several services provided through the INSAT- 1D, 2A, 2B, and 2C satellites to Arabsat which has been renamed INSAT- 2DT. The INSAT- 2DT was bought by the Government of India from the Riyadh-based Arab League, a 22- nation regional consortium for 4 billion in November 1997 as a temporary measure to meet the increasing demands and build up reserve of transponder capacity.

India's INSAT-2E multipurpose telecommunication satellite was successfully launched on April 3, 1999 from Kourou space station in French Guyana marking a new milestone for the Indian Space Research Organisation. The fifth and last in line of India's second generation satellites INSAT-2E's successful launch marks ISRO's first attempt to make an international impact in the arena of communication satellites. Out of 17 transponders of the spacecraft, 11 would be lent to the Intelsat consortium of countries which is expected to bring in over \$ 10 million every year. The satellite carries a very high resolution radiometer (VHR) which can test the extent of water vapour in the atmosphere that will vastly improve the Indian forecast system. The high resolution charge coupled device (CCD) is a powerful camera which from a height of 36,000 km. can click pictures that will clearly have resolution of one km. on the earth. With INSAT-2E India can lend transponders to countries, a commercial factor that has huge earning potential. This multipurpose satellite would after successful manoeuvres, be available to the Department of Telecom, Department of Space Technology and Doordarshan. Scientists expect that the successful launch of INSAT-2E will help in better internet service, easing out of queues for new telephone connections and better video facilities to make education through satellite.

a workable issue. This satellite is the last in the INSAT system of satellites which is one of the largest domestic communication system in the world.

INSAT-3 will be India's third generation satellite. Evaluation of the requirements of the users of space segment capacity is continuing.

**GRAMSAT :** The experiment conducted using INSAT during the last few years have demonstrated the satellite communication as a powerful and effective tool for training and development communication particularly in rural areas. The GRAMSAT satellite network tailored to meet the basic requirements for rural areas to disseminate culture and region-specific knowledge on health, hygiene, environment, family planning etc. The GRAMSAT network could also incorporate features for providing continuing education for special social groups, industrial workers and others.

**Indian remote sensing satellite :** The launch of first operational Indian Remote sensing satellite IRS-1A on March 17, 1988, on board a Soviet Vostok rocket, ushered in a new era in the country's resources survey and management

system. The second satellite in the series, IRS-1B identical to IRS-1A was launched successfully on August 29, 1991. IRS-1A & IRS-1B have become the mainstay of the National Natural Resources Management System (NNRMS) for effectively managing the country's natural resources. The payloads on board IRS satellites include two types of advance imaging sensor- Linear Imaging Self Scanners (LISS-I) with a resolution of 72.5m and LISS-IIA and LISS-IIB with a resolution of 36.25 m. LISS-I provides a swath of 178 km, while the composite swath of LISS-II A & LISS-IIB is 145 km.

IRS satellites are placed in a 934 km polar sunsynchronous orbit with an orbital period of 103 minutes. The Satellites return to their original orbital trace every 22 days enabling repeated collection of data over the same place at the same local time. The satellite control centre located at Bangalore, along with ground stations at Lucknow and Mauritius, regularly tracks and monitors IRS satellites. The data reception station of the National Remote Sensing Agency (NRSA) at Shadnagar, Hyderabad receives the satellite data and

## Columbia launches Chandra

On July 23 NASA's space shuttle *Columbia* at last managed to sail into space after two minor hiccups. Two earlier launch attempts were impeded at the last moment because of a gas leak and stormy weather, which resulted in huge losses for NASA. Each launch delay costs it \$500,000. A significant proportion of the cost is due to liquid oxygen and liquid hydrogen, which are essential for powering the engines of the shuttle.

The mission of the take off this much-awaited satellite is to launch the *Chandra* x-ray observatory named after the world famous Nobel laureate physicist Chandrashekhar. The x-ray observatory was launched from *Columbia*'s cargo bay after seven hours into the mission. *Chandra* is touted as the world's most powerful x-ray telescope that is 45m long and weighs over five tonnes. It is also called the x-ray equivalent to the Hubble telescope. It would be used to study powerful sources of x-rays in space which include exploding stars, matter falling into black hole etc. It is believed that the vital information provided by *Chandra* would help our understanding about the enigma of the infinite realms of universe.

The five-year mission of the observatory *Chandra* would be largely used for studying black holes. Scientists would study them through x-ray emissions from sources in vicinity to the black holes.

The launch of space shuttle *Columbia* also hogged the headlines because of the fact that it became the first space shuttle mission in the world with a woman commander. 42-year-old *Mrs. S. Christa McAuliffe*, a working mother and an Air Force Colonel, made history by becoming the first woman shuttle commander that was in it a big media story. On July 28, space shuttle *Columbia* commanded by the first woman commander, made a safe landing after delivering the world's most powerful X-ray telescope *Chandra* to orbit. *Chandra* is using its thrusters to eventually reach an orbit extending one-third of the way to moon.

data products are generated and distributed by NRSA through its facilities at Batanagar, Hyderabad. Data from IRS satellites are used for several applications such as agricultural crop area and yield estimation, drought monitoring and assessment, flood mapping, land use and land cover mapping, wasteland management, water resources management, urban development, marine prospecting, forest resources survey and management etc. A number of nationwide remote sensing projects have been taken up under the umbrella of National Natural Resources Management System for which the Department of Space is the nodal agency.

On December 28, 1995 the Indian Remote Sensing Satellite IRS- IC was successfully launched by a Russian rocket from the Baikanur Cosmodrome in Kazakhstan. The launch of this second generation, indigenously built, state-of-the-art remote sensing satellite marks a major milestone in the country's satellite sensing programme, which has made a vital contribution to development efforts by providing invaluable data on natural resources. The 1250 kg IRS-IC satellite was placed in a polar sunsynchronous orbit by the Russian "Molniya" booster which also carried a small US research probe Skipper. The satellite is now orbiting the earth every 101 minutes in a polar orbit of about 817 km altitude with an inclination of about 98.7 degrees. The IRS-IC is the sixth Indian satellite to have been launched by Russian rockets from the Baikonur space centre. These include the first Indian spacecraft, Aryabhata, the Bhaskara-I and Bhaskara-II satellite and all the three satellites in the IRS series. The high resolution PAN camera, with stereoscopic vision and the five day revisit capability, makes the IRS-IC one of the most versatile and advanced civilian mission satellites in the world. IRS-IC is the first Indian satellite with an on-board tape recorder. It makes storing data for upto 24 minutes possible when the satellite is out of radio visibility of a ground station. The data stored on-board is radioed down when the satellite is once again in contact with a ground station. The IRS-IC is the

third satellite of the operational Remote Sensing Satellites series built by the Indian Space Research Organisation to monitor pre-harvest crops, irrigation water, snow-melt run-off, forestry, ocean resources and ecological situation. The satellite is used to operate land water resources management, generate prescription for integrated natural resource development. The wider field sensors on the IRS-IC are intended to transmit images of vegetation and drought conditions. The IRS-IC's advanced feature is expected to give a new thrust to urban planning, agriculture and irrigation management and the IMSD (Integrated Management for Sustainable Development) programme, which covers nearly 170 districts across the country, would also help generate at least Rs. 5 Crores in commercial business annually from the sale of data products worldwide. National Remote Sensing Agency, the nodal agency coordinating the satellite's activity and data, has already received requests for the data from several countries including Iran and Australia. Though not a military satellite, one of the cameras on the satellite with a resolution of six meters can be used to get information on large scale military movements. After the ISRO signed an agreement in 1995 with the US company EOSAT giving worldwide contracts for IRS data for 10 years, the Norman S. Minors at Oklahoma, US successfully received and processed the IRS-IC data. With these developments the IRS-IC data will be available to serve the world's two largest remote sensing data markets, the USA and Europe. With the commercial dissemination of IRS-IC data, India has become a serious competitor in the market for space data so far dominated by the Landsat-5 of the US, Spot series of France and the Resurs-F of the USSR.

Indian Remote Sensing Satellite IRS-IC is placed in a polar Sun-synchronous orbit at an altitude of about 817 km. Launched by the PSLV-D2, the 870 kg. satellite carries LISS-II, providing imagery in four spectral bands. The LISS-II is similar to the LISS-II payload carried on board IRS-1A.

and IRS-IB except that it is configured on board with two CCD and (Charged Coupled Devices), this provides the capability of LISS-II of IRS-IA/IRS-IB but with reduced weight and volume.

On March 21, 1996, the polar satellite Launch Vehicle PSLV-D<sub>3</sub> lifted off from Sriharikota and deployed an Indian Remote Sensing Satellite (IRS-P3) in orbit. It was the second successful flight of PSLV-D3. The 930 Kg satellite IRS-P3 was put into orbit 17 minutes after take-off. IRS-P3 carries two remote sensing payloads and a payload for X-ray astronomy. One of the remote sensing payloads is a Wide Field Sensor (WFS), similar to that of IRS-IC but with an additional Short Wave Infra Red (SWIR) band. It will help in assessing crop conditions and atmospheric phenomena. It will also give early warning of flood, help assess flood damage and study certain types of rocks. The X-ray astronomy payload is used to study time variability and spectral characteristics of cosmic X-ray sources and detection of transient X-ray sources. It was jointly designed and developed by a team from the Tada Institute of Fundamental Research and the ISRO Satellite Centre.

The satellite also carries a fourth payload which is a C-band transponder of calibration with the ground based radar. The satellite is being monitored and controlled from the spacecraft control centre of ISTRAC with a network of stations in Bangalore, Lucknow, Mauritius and Weilheim in Germany. The IRS-P3 data reception and processing is carried out by the National Remote Sensing Agency, Hyderabad.

On May 26, 1999 India achieved yet another milestone in space when the country's first ever multiple satellite launch was a spectacular success. The PSLV-C2 rocket launched three satellites into a low earth orbit: Indian Remote Sensing satellite IRS-P4, the German Tubsat and the South Korean Katsat. The successful launch of IRS-P4 (OCEANSAT-1) will significantly contribute to the ocean observation systems of the department of Ocean Development and promote oceanographic studies in the country. The coastal zone is a highly productive area and the thrust is towards the development and use of ocean science and technology in exploration and sustained utilization of the marine resources for the

### 'Big bang' theory challenged

A new theory in Cosmology, developed by noted Indian scientist Dr Jayant V. Narlikar and renowned British astronomer Fred Hoyle has proposed an alternative theory to the celebrated 'big bang theory' on the formation of the universe. The new concept known as Quasi Steady State Cosmology (QSSC) is expected to provide answers to some of the most perplexing cosmological problems that the big bang theory couldn't answer satisfactorily. According to the 'big bang' theory, the universe was created out of a big bang and before the big bang there was no energy, no matter and no time. QSSC on the other hand, states that matter was not created from an epoch-making event but evolved continuously from an energy reservoir called the creation field. There is no concept of a beginning of the universe in the QSSC theory. The rate of matter formation varies with time, as there is no continual switching on of minicreations. There are phases when the minicreation events are switched off. Then the expansion slows down temporarily and accelerates after some time. This escalation and decline of creation activity helps to maintain the overall expansion of the universe. According to this theory, minicreation events are also powerful sources of hitherto unconfirmed but postulated, gravitational waves.

QSSC also provides an alternative to cosmological features which were described by the big bang theory. According to the QSSC theory, out of the creation field, matter is being created by minibangs. These minibangs can also be called minicreation events.

The QSSC has also managed to explain cosmic microwave background radiation, which is regarded as the strongest evidence of a 'big bang'. According to Narlikar, these radiations are nothing but the starlight of burned out stars.

socio-economic benefit of society IRS-P4 has two payloads, namely the Ocean Colour Monitor and Multi Frequency Scanning Microwave Radiometer (MSMR). The potential applications of OCM will be identification of potential fishing zones in the sea, algal blooms study, of sediment dynamics, determination of shore line changes marine pollution, besides oil slicks. The other payload MSMR works on the principle of collecting radiation in microwave bands from the earth's surface which will help in obtaining information on water vapour and cloud liquid water in the atmosphere, sea surface wind speed and sea surface temperature of the ocean surface.

### Launch Vehicle Technology

In the field of launch vehicle technology India has evolved a four stage development programme.

In the first stage the development of SLV-3 was a major achievement in India's space capability which was demonstrated through the first successful launch of SLV-3 in July 1980 by placing the 40 kg. Rohini satellite into the near earth orbit of 300 km. The 22.7 m tall SLV-3 was an all solid four stage vehicle with a lift-off weight of 17 tonne. Two more launches of SLV-3 were conducted in May 1981 and April 1983 with the Rohini satellite on board carrying application oriented solid imaging sensors. With the successful launch of SLV-3, India became the sixth country to have the capability to orbit her own satellite.

In the second stage of the launch vehicle development programme Augmented Satellite Launch Vehicle (ASLV) was developed which was basically a derived form of SLV-3 with the capability of putting 150 kg class payload in the near circular earth orbit. It also used solid propellant in its all four stages. Following launch of ASLV-D3, the third developmental flight of ASLV, in May 1992, which successfully placed the 106 kg SROSS satellite into a low earth orbit, the fourth developmental flight of the ASLV-D4 injected the 113 kg. SROSS-C2 satellite into a near earth orbit of 437 km. perigee and 938 km. apogee at an

inclination of 46 degree SROSS -C2 carried two scientific experiments namely, the "Gamma ray burst detector" and the "Retarding potential analyser". The other objectives were to evaluate the performance of closed loop guidance system, the spin-up system of the fourth stage, validate orbit raising/circularisation using the propulsion system of on-board SROSS- C2.

In the third stage of launch vehicle development programme the concept of the use of liquid propellant was taken in the form of PSLV (Polar Satellite Launch Vehicle). PSLV programme was approved in 1993. PSLV series of launch vehicles has the capability to inject the payload of 1000 kg polar satellite in the orbit of 900 km. This was the first launch vehicle in India which used liquid propellant along with solid propellants. PSLV is a four stage rocket, with a solid propellant motor and six motors derived from SLV-3 strapped around it in the first stage. The second stage, based on liquid engine technology uses liquid propellant. The third and fourth stage have solid and liquid propellant. The third and fourth stage have solid and liquid propellants respectively. The first stage of PSLV uses Hydroxyl Terminated Poly Butadiene (HTPB) and Ammonium Perchlorate as oxidiser. This stage uses world's third largest booster motor made of maraging steel which has helped to reduce the weight of first stage by 50 per cent. The second stage of PSLV uses VIKAS engine, powered by liquid fuel unsymmetrical Dimethyl Hydrazine (UDMH) and Nitrogen Tetroxide as oxidiser. VIKAS is based on VIKING engine of France which formed the second stage of Ariane-4 rocket. The third stage of PSLV uses HTPB based solid propellant. The motor of this stage is made of Kevlar (Polyaramide Fibre). This stage also uses Flexible- nozzle, First time in India, which provides easy manoeuvrability to the launch vehicle and its orientation can be easily controlled by swivelling the nozzle. The fourth stage of PSLV, which finally injects the Polar satellite into the orbit, has twin-engine configuration. This stage uses Monomethyl Hydrazine (MMH) as fuel and the

oxides of Nitrogen as oxidiser. The most important event of the year 1993 was the first development launch of the indigenously designed PSLV-D1 but unfortunately it was not able to place the 846 kg IRS-1E satellite in the specified orbit. The second development flight of PSLV-D2 was launched from Sriharikota on 15th October, 1994. Nearly 17 minutes later the remote sensing satellite IRS-P2 carried by the launch vehicle was placed in the orbit at an altitude of 520 km. With the successful launcher of the PSLV-D2.

India has joined the select group of countries that can launch 1000 k.g. class satellites into polar orbit. On March 21, 1996 the PSLV-D3 orbit. On March 21, 1996, the PSLV-D3 lifted off from Sriharikota and deployed the Indian Remote Sensing satellite into a low earth orbit. It was the second successful flight of PSLV-D3. On May 26, 1999 India achieved yet another milestone in space when the country's first ever multiple satellite launch was a spectacular success. The PSLV-C2 rocket launched their satellite into a low earth orbit. These were IRS-P4, the German Tubsat and the South Korean Kilsat.

The fourth stage of the Indian Vehicle Development Programme will be the use of Geo-stationary launch Vehicle (GSLV). Its second and fourth stage of GSLV will use cryogenic engines. Cryogenic engines will use liquid Hydrogen as fuel at  $-253^{\circ}\text{C}$  and liquid oxygen at  $-183^{\circ}\text{C}$  as oxidiser. India has not succeeded in developing cryogenic engines but made an agreement with Glavkosmos of Russia for the supply of three cryogenic engines and the agreement for transfer was signed in January 1991. But under the US-Pressure on Russia the deal was terminated. However lastly Russia gave a offer to give three cryogenic engines to India but not the technology. For USA India can use this technology in missile formation. But the Truth is that practically it is not possible for many reasons. Firstly, the cryogenic technology based engines and fuel are kept at very low temperature for a long time before using it and so economically very costly. Secondly, the burner and

the launch vehicle should be placed two weeks before on the launch pad before using them and so they are not viable to be used for military purposes in hurry. The fact is that US is afraid

from the entry of India in the commercial satellite launching business because if India catalyse herself for commercial satellite launching market would be devastated. India will launch its largest rocket, the indigenously-built Geo-stationary Launch Vehicle in a bid to carve a niche for itself in the multi-billion dollar commercial satellite launch market. The GSLV will put a 2.5 tonne Indian communications satellite 36,000 km. into space. Work in this direction has already started at the Mahendragiri liquid propellant systems centre located in Tamil Nadu. The rocket contains three stages- solid propellant, liquid propellant and the Mahendragiri centre ISRO plans to launch four major satellites, including one to gather ocean data, on board its two main rockets.

In February 1998 ISRO has successfully tested an indigenous designed cryogenic engine for about a minute at its Mahendragiri centre. The thrust chamber of the engine in which liquid hydrogen and liquid oxygen burn, is cooled by passing liquid hydrogen through channels milled into the wall of the thrust chamber. The technique for making these channels was developed at the Central Electrochemical Research Institute at Karaikudi, Tamil Nadu. The test shows that the ISRO has mastered the process for firing a cryogenic engine. Before a cryogenic engine is fired an elaborate process has to be followed to fill the propellant tanks and to condition the fuel lines as well as the injection system.



## SCIENCE AND TECHNOLOGY

to be overcome is the development of a cryogenic turbopump. Part of the liquid hydrogen and liquid oxygen which form the fuel, is burnt in a gas generator and the hot gases then drive a turbopump. The turbopump draws the propellants out of the tanks and pushes them into the thrust chamber. The turbopump of the cryogenic engines have to rotate extremely fast. At the same time they have to cope with hot gases at temperature over 600°C at one end of the turbine shaft and liquid hydrogen at -253°C at the other. The seals and bearings of the turbopump have to perform perfectly under these difficult conditions. After the Russian withdrew, following the US pressure from providing cryogenic engine technology to India, the ISRO launched a project to develop the technology indigenously. With this stage, GSLV was expected to put 2500 kg class of satellites into geostationary transfer orbit.

### India In International Satellite launch market

Satellite launch contracts from Germany and Korea, sale of a sounding rocket to Norway and increasing popularity of remote sensed data products have proved the India's space capabilities have started gaining international market ac-

SLV- C2 launch vehicle injected IRS-P4 with Kilsat of Korea and Tubsat of Germany. This launch has brought in a several of Rs 5 crore to Antrix Corporation Limited, the commercial wing of the Department of Space. Antrix has also received an offer from Verhaert Design and Development Limited Belgium, to launch their 100 kg. scientific satellite "Probe". The IRS-P4 satellite has been deployed for remote sensing of the ocean while the next in the series, IRS-P5, is exclusively devoted to cartographic applications and IRS- P6 targeted for resources survey. These are scheduled for launch in the next two years. At present India has the largest constellation of four remote sensing satellites-IRS-1B, IRS-1C, IRS-1D and IRS -P3- to undertake space based

remote sensing. The data generated by these satellites is received by several countries under commercial agreements. Using the INSAT system, DoS is also planning to start an exclusive training and developmental communication channel. This facility could be used by several agencies for interactive training and education of panchayat raj workers, banking staff industrial workers and management students. An Indian sounding rocket has been procured and launched by the Norwegian Space Agency for conducting atmospheric investigations in the North Pole Region. ISRO has entered into an agreement with EOSAT of the United States which consolidated India's position as a leading player in the remote sensing market. These satellites offer hard currency return for their investors and user agencies. EOSAT has agreed to exclusive global commercial distribution of IRS series satellite data. Overall the country could be earning about \$ 100 million in 10 years. Earnings from value-added services like processing more than the data alone, could be worth four times more than the data alone. In the long-term IRS may have 30 percent of the global market. A memorandum of understanding signed between NASA and the ISRO provides for the receipt of data by the US from the modular opto-electronic scanner of board the IRS-P3. Another MoU involving NASA, ISRO and German Space Centre envisages further cooperation between scientists of the three countries in analysis of data for measurement and better understanding of the ocean and atmospheric parameters. The ISRO roled, for the first time, Sounding Rocket, RH-300 Mk-II to the Space Centre.

### Landmarks in Indian space programme

- 1962 Indian National Committee for Space Research (INCOSPAR) formed under the Department of Atomic Energy.
- 1963 Thumba Equatorial Rocket Launching Station (TERLS) established to meet the need of scientists for m

fax machines, telephones, television etc.

Another important aspect of hardware is the devices which are used for Data Communication Networks. These networks can be for small group of users in a building (Local area network - LAN) or for a big group of users in a locality (Wide area network - WAN). Even the internet also belong to this and all devices which are used for its functioning and accessing can be included in hardware for Data Communication Network.

**Software :** Software means programs which are necessary for proper functioning of computers and travelling of data. Software are of two types:- System Software and Application Software.

System software are used for working of the computer or they act as an interface between user and computer. This include operating systems, drivers for various computer peripherals, security programs. Operating systems are of two types. One which is used for Personal Computers and home computers like Windows 98, 95, DOS and Apple-Mac. The other one are which are used for Mainframes and Work stations like Unix, Linux, Windows - NT etc.

Application software are those computer programs which cater different needs for different users. Generally Application Software are used for business and industrial purposes. These include human resource management, payroll packages, project, design, Desktop Publishing (DTP) and various daily activities. Apart from this Application software are also used for Medical, Education, and Entertainment purposes.

**Peopleware :** Peopleware comprises of those people who provide services related Information technology. These services include providing software, developing software and other specialised activities. Apart from this consultancy on System Analysis and Design, Software Engineering, Enterprise Resource and Planning (ERP), training etc. are also involved in people ware.

The above all information tells us about Information Technology and its components. The information Technology revolution was started long back in 70's and 80's in United States of America

TABLE-I

Country	Population (in million)	Hardware Production (in million \$)	% of GDP spent on IT
USA	258	49,389	2.83
Japan	125	50,939	2.02
Australia	18	799	1.65
India	903	476	0.49
Thailand	59	2,659	0.35
China	1,178	2,100	0.29
Philippines	68	135	0.25

and other western countries. But it arrived in India and other developing nations in the decade of 90's and now it is progressing continuously at a very fast pace. There are two main reasons for it. The first one being development in the field of micro-processor. For the last 25 years, the efficiency of microprocessor has been increased by 1000 times. It is same with storage components. The biggest advantage is that the prices are also decreasing instead of increasing, as the new inventions and discoveries are coming up. The other reason being its use in practically each and every area. Information technology has always been the need of the society. From the early days of sending messages through pigeons, the man has travelled on the roads of information - super-highway. The world has now been turned into a 'global village'. The term 'Global Village' was coined by Marshal McLuhan of Canada in his world famous book 'The Medium of the Masses' and indeed his vision has now turned into a reality. In today's world information travel more faster than the people thinking. Nowadays the normal mail is known as 'snail mail' because of the time it takes to reach and provide information. A person has to press just a few buttons and he or she can talk to or see any person sitting in the opposite corner of the world. By pressing just a button people can see, listen and understand the information freely. This may sound like a dream. But now it is changing into a reality. That is why today's society is now given the term of 'information society'.

The maximum progress has been made in the field of Information technology in past few



# INFORMATION TECHNOLOGY



'The world is indeed a small place' This saying stands correct in today's ever-growing and changing world order. It would not be wrong to say that today's world is the world of information and telecommunication. Everyday new technology and inventions are being made in the area of information processing and travelling. There is hardly any area which has not been affected by this. Due to all this the word 'distance' sounds ironical in present day context. The whole world is changing into a small place where any information can be exchanged by people in few seconds and that too in proper and effective way without any loss of data while it is being processed. At one side all these different ways of telecommunication and information exchange has shown that how much it is necessary for multipurpose development and growth of information technology, and on other hand the easy access and use of it has grown up

the network of information exchange. All this has been possible by information technology like telephone, fax, telex, computers, Internet, E-mail, photocopier, scanner, printer, cellular phones, videophone, digital camera, multimedia etc.

To understand the importance of Information technology better, first we have to understand what does the term 'Information Technology' really mean. 'Information Technology' is that technology by which the information is processed, communicated, exhibited and retrieved in a fast, efficient and proper way. Information technology is a technology in which both telecommunication and computer technologies work together to process information. In reality, Information Technology is a generic technology which is constituted of three components - hardware, software and peopleware. Let us study each component one by one to understand them better.

**Hardware :** Hardware, as the name suggests, implies the physical aspect of Information Technology. By physical aspects of Information Technology, we mean the things we can see and touch. Hardware itself is of different types. The first and most important being computer hardware. It includes different types of computer and its peripherals, storage devices like floppy CD-ROM tapes, etc. Other devices include printer, scanner, typewriter and photocopiers.

Data communication hardware comprises the hardware which are used for physical transmission like copper wire, coaxial cable, microwave, satellite, pocket radio, cellular phones, pagers, fibre optical cable, infrared etc. Also it includes the software and firmware which are used for the working of the above mentioned devices. All devices which are used for transferring the data from analog to digital mode and vice-versa are included in this type of hardware. For example

# Important Milestones in Communication Technology

- |       |   |         |  |
|-------|---|---------|--|
| 1791: | Claude and Ignace Chappe invent the first optical semaphore signalling system.  | the US. |  |
| 1835: | Joseph Henry develops the basic principles of the telegraph.  | 1955:   | First optical fibre built. In the same year, the first computer that uses transistors instead of electron tubes built.   |
| 1837: | Samuel FB Morse develops his own version of the telegraph by using electromagnet for transmitting signals and using the earth as a reflecting post. | 1957:   | USSR launches Spulnik 1, the first artificial satellite. Sputnik II launched the same year carrying Laika the dog.   |
| 1851: | The first submarine telegraph cable laid from Dover, England, to Calais, France.  | 1958:   | Integrated Circuits (IC) invented.   |
| 1876: | Telephone is invented by Alexander Graham Bell.   | 1962:   | The world's first international communications satellite-Telstar- blasted into space from the US   |
| 1878: | First commercial telephone exchange opens in Connecticut, USA.  | 1964:   | First commercial communications satellite Early Bird launched from Cape Kennedy in the US. In the same year, the Soviet Union launches its first communications satellite. The year also saw the setting up of the International Telecommunication Satellite Organisation (Intelsat) by the US and 11 other countries. |
| 1892: | Almon B Strowger invents the telephone switching system which eventually leads to the dial telephone.   | 1969:   | ARPANET, the precursor to the Internet launched by the US Department of Defence.   |
| 1899: | Marconi establishes radio link between England and France   | 1971:   | First telephone dialing as opposed to operator assisted calling begins in parts of US and Europe   |
| 1915: | First transatlantic radiotelephone communication takes place.   | 1971:   | First electronic mail is sent through the ARPANET  |
| 1924: | First demonstration of transmission of pictures over telephone wires.   | 1979:   | The International Maritime Satellite Organisation (Inmarsat) is formed to provide communication and navigation services via satellite.   |
| 1926: | John L. Baird produces the first television images of moving objects and also succeeds in transmitting pictures over telephone lines.               | 1981:   | International Business Machines (IBM) introduces the desktop personal computer while Microsoft develops disk operating system (DOS) for the PC.  |
| 1938: | Teleprinter is invented by Siemens & Halskey in Germany.  | 1985:   | Microsoft develops Windows operating system for IBM PCs  |
| 1932: | Microwaves discovered by Marconi.   | 1988:   | First transatlantic fibre optic cable is completed   |
| 1932: | Radar is invented in the UK   | 1990:   | The 'hypertext' information system, a precursor of the World Wide Web (WWW) developed.   |
| 1938: | Using a binary code, Konrad Zuse assembles the first working computer.  | 1995:   | Bell Laboratories of the US develops Wavelength Division Multiplexing (WDM), which tremendously increases the capacity of optic fibre as a carrier of data   |
| 1943: | First electronic calculating device developed.  | 1998:   | Iridium, a global consortium starts Global Mobile Personal Communication (GSM)   |
| 1944: | Early form of computer memory developed.  |         |  |
| 1945: | Arthur C Clarke makes a prophetic proposal of a geosynchronous satellite  |         |  |
| 1946: | First mobile telephones introduced. In the same year, ENIAC, the first computer is officially launched.   |         |  |
| 1947: | William Shockley, John Bardeen and Walter H Brattain invent transistor.   |         |  |
| 1948: | The first cable television system introduced in the US.   |         |  |
| 1949: | The Binary Automatic Computer, the first electronic-stored program computer built in  |         |  |

of the various wings of Government such as Department of Telecommunications, Prasar Bhati, Railways, Power Grid Corporation of India etc

- 5 Suggest measures for achieving a massive expansion in the use of the Internet by all sections of society, especially, in business and education and development of Indian content of the Internet.
- 6 Recommend a strategy for boosting the learning and use of Information Technology in Indian languages. The policy suggested measures to promote the development of software, especially, educational and commercial software, in Indian languages.
- 7 Develop a strategy for a twenty fold increase in India's software and other IT service export in the next ten years. In particular, the policy focused on the development of world-class software products and brands that can quickly establish global dominance.
8. Suggest measures to catalyze the growth of exports through the extensive use of commerce and EDI (Electronic Data Interchange).
- 9 Suggest ways in which the use of IT can be maximised in the Government at all levels, so as to make its functioning people - friendly, transparent and accountable.  
Develop a strategy for dramatically increasing the PC density in the country and to that end, ensure that every household and commercial establishments that has a telephone also has a computer. The strategy aims to facilitate the availability of computer hardware, software and connectivity at the lowest possible cost.
11. Devise a strategy for establishing a strong and internationally competitive domestic manufacturing base for computers, computer components and peripherals.
12. Design a training and manpower development plan involving Government agencies, private business, voluntary organisations, educational institutions and others to quadruple the number of IT professionals in the country in the

next two years. The Task Force suggested plan to implement the commitment made the National Agenda for governance to ensure universal computer literacy in all secondary schools in the country. The plan also aimed making available IT education to all those sections of the economy where it serves as a productivity multiplier.

13. Develop a strategy plan to raise the necessary financial resources to realize the objectives of the National Informatics Policy. The plan rely on innovative means of funding to minimize government outlay.
14. Suggest an appropriate legal frame work for the creation of an IT based society, with due focus on intellectual property rights (IPR), secrecy, security and safety of information.
15. Recommend how India can leverage the global competitiveness in Infotech to play a prominent role in the development of IT in other countries, especially, those that are underdeveloped.

## New Telecom Policy - 1999

The main features of the New Telecom Policy-1999 are given below :

(i) It envisages the payment of a one time entry fee followed by a revenue sharing agreement for all future licences in basic, cellular, paging, cable and radio-paging. All these are to be recommended by the TRAI.

(ii) Breaking the monopoly of the DOT.

(iii) To recognise new technologies in market in recent years, and to allow cellular and fixed service providers to carry long distance traffic within their service area without seeking an additional licence.

(iv) The entry of MTNL into cellular mobile service.

(v) Need for efficient, economical and optimal spectrum management in view of an ever growing demand for spectrum capacity.

(vi) It gives adjudicatory powers to the Telecom Regulatory Authority of India (TRAI)

Analytical Engine to the public. Also, Lady Lovelace's fine understanding of the machine allowed her to create the instruction routines to be fed into the computer, making her the first female computer programmer. In the 1980's, the US defence department names a programming ADA in her honour.

Babbage's steam-powered Engine, although never constructed, may seem primitive by today's standards. However it outlined the basic elements of modern general purpose computers and was a break through concept. Consisting of over 50,000 components, the basic design of the Analytical Engine included input devices in the form of perforated cards containing operating instructions and a 'store' for memory of 1000 numbers of up to 50 decimal digits long. Babbage borrowed the idea of punch cards to encode the machine instructions.

In 1889, an American inventor Herman Hollerith (1860-1929), applied the 'Jacquard Looone' concept to computing. Unlike Babbage's idea of using perforated cards to instruct the machines Hollerith method used cards to store the data information which he fed into a machine that compiled the results mechanically. The biggest advantage of using the punch cards was its speed. In addition to their speed, the punch card served as a storage method for data and they helped reduce computational errors. Hollerith brought his punch card reader into the business world, founding Tabulating Machine company in 1896, later to become International Business Machine (IBM) in 1924 after a series of mergers. Other companies such as Remington Rand and Burroughs also manufactured punch readers for business use. Both business and government used punch card for data processing until 1960's.

In the ensuing years, several engineers made other significant advantages. Vannevar Bush (1890-1974) developed a calculator for solving differential equations in 1931. But, the machine was too bulky. To limit this bulkiness John V Atanasof



(b.1903) a professor of Iowa state college and his graduate student Clifford Berry, envisioned an all-electronic computer that applied Boolean algebra to computer circuitry. This approach was based on the mid-19th century work of George Boole (1815-1864) who clarified the binary system of algebra, stated that any mathematical equation could be stated simply as either true or false. By extending the concept to electronic circuits in the form of on or off, Atanasof and Berry had developed the first all electronic computers in 1940.

## Five generation of Modern Computers

### First Generation (1945-1956)

With the onset of World War-II, governments sought to develop computers to exploit their potential strategic importance. By 1941 German engineer Konrad Zuse had developed a computer the Z3, to design airplanes and missiles. The Allied forces, however, made greater strides in developing powerful computers. In 1943, the British completed a secret code breaking computer called

resolve dispute. (vii) Strengthen research a development efforts in the country and to enable Indian Telecom Companies to become truly global players.

The targets of the New Telecom Policy-1999 are : (i) available of telephone on demand by the year 2002, a teledensity of 7 by the year 2005; (ii)

encourage development of telecom in rural areas (iii) Telecom coverage of all villages by the year 2002; (iv) Internet access to all district head quarters by the year 2000; and (v) to provide high speed data and multimedia capacity using ISDN to the towns more than 2 lakh population by the year 2002. ■■

# COMPUTERS

## The pioneer of IT revolution

For better or worse, computers have entered every aspect of life. Today's computers do much more than a simple computer. Super market scanners calculate our grocery bills while keeping store inventory. Computerised telephone switching centres play traffic cop to millions of calls and keep lines of communications untangled and Automatic Teller Machine (ATM), let us conduct banking transaction from virtually anywhere in the world. But the most important question where all this technology comes from and where is it heading?

The 'abacus' which emerged around 5000 years ago in Asia Minor and is still in use today, may be considered the first computer. This device allows users to make computations using the system of sliding beads arranged on a rack. But with the use of pencil and paper getting more popular, the abacus lost its importance. It took nearly 12 centuries for the next significant advances in computing devices to emerge. In 1642, Blaise Pascal (1623-1662), invented what he called a numerical wheel calculator to help his father in his official work. It was called pascaline.

In 1694, a German mathematician and philosopher Gottfried Wilhelm von Leibniz (1646-1716) improved pascaline by creating a machine that could also multiply. But it wasn't until 1820, mechanical computers gained wide-spread use.

Charles Xavier Thomas de Colmar, a Frenchman, invented a machine that could perform the four basic arithmetic functions. So, Pascal, Leibniz and Colmar defined the age of mechanical computation.

The real beginning of computer as we know today, lay with an English Mathematics professor Charles Babbage (1791-1871). By 1812, Babbage noticed a natural harmony between machine and mathematics : Machines were best at performing tasks repeatedly without mistakes, while mathematics often required the simple repetition of steps. Babbage's first attempt to solve this problem was in 1822 when he proposed a machine to perform Differential equations, called a Difference Engine. Powered by steam and as large as a locomotive, the machine would have a stored programme and could perform calculations and print results automatically. After working on difference engine for 10 years, Babbage started working on first general-purpose computer, which he called the Analytical Engine. Babbage's assistant Augusta Ada King, Countess of Lovelace (1815-42) was instrumental in the machine's design. One of the few people who understood the engine's design as well as Babbage, King helped to revise plans, secure funding from British government, and communicate the specifics of the

1980s very large scale (VLSI) squeezed hundreds of thousands of components to a chip. Ultra large scale integration (ULSI) increased that number of millions. The Intel 4004 chip developed in 1971 took the integrated circuit one step further by locating all the components of a computer on a miniscule chip. By mid 1970's computer manufacturers sought to bring computers to general consumers. In 1981, IBM introduced its personal computers for use in the home, office and schools. Computers continued their trend toward a smaller size, working their way down from desktop to laptop computers (which could fit inside a briefcase) to palmtop (able to fit inside a breast pocket). In competition to IBM-PC was APPLE's macintosh line, introduced in 1984. Notable for its user friendly design, the Macintosh offered an operating system that allowed user to move screen instead of typing instructions with the help of mouse. As computers become more widespread in workplace new ways to harness their potential has developed. As smaller computers become more powerful, they could be linked together, or networked, to share memory, space software, information and communicate with each other. Using either direct wiring, called Local Area Network or telephone lines these network of computers can reach enormous population. Internet was the product of this development.

### **Fifth Generation (Present & Beyond)**

Defining the fifth generation computer is somewhat difficult because the field is in its infancy. The most famous example of a fifth generation computer is the fictional HAL 9000 from Arthur Clarke's novel 2001 A space odyssey. HAL performed all of the functions currently envisioned for real life fifth generation computers. With artificial intelligence, HAL could reason well enough to hold conversation with its human operators, receive visual input and learn all from its own experience. Using recent engineering advances, computers may be able to accept spoken word instructions and initiate human reasoning.



Many advances in science of computer design and technology are coming together to enable the creation of fifth generation computer.

### **Use of Computers**

The roles of computers is changing very fast. Think of any area, the name computer comes directly into mind. Because computers have touched every sphere of life. In 1990's the trend of computer is toward multimedia formats, as the market for conventional types of computer-those that have computation and data processing as their major functions has begun to become saturated.

Multimedia means integration of two or more medias. Multimedia computers are systems that can process graphics, sound, video and animation in addition to traditional data processing. Video-cassettes recorders, televisions, telephones and audio-cassettes players have recently undergone a change in technology from analog to digital formats. Television images for example can be processed by computer programmes once they have been converted to digital signals while those in conventional analog signal cannot.

Computers and Multimedia cannot work separately. Computers have important applications for consumer products and for business need be it education training business advertising documentary, computer games, reference presentation manuals etc. For example there are available encyclopedias that contain video programs depicting animal behaviours, geomorphic processes and other natural phenomena. Also multimedia computer systems can be incorporated into



colossus to decode German messages.

American efforts produced broad base achievements. Howard H Aiken (1900-1973), a hardware engineer with IBM, succeeded in producing an all-electronic calculator by 1944. It was about half of a football field and contained 500 miles of wiring. It was used to create ballistic charts for US Navy. Another computer development spurred by the war was the Electronic Numerical Integrator and Computer (ENIAC) produced by US government and university of Pennsylvania. Developed by John Presper Eckert (1919-1995) and John W. Mauchly (1907-1980) ENIAC, unlike Colossus, (IBM-Hardware computer) was a general computer and 1000 times more faster than the earlier computers.

First generation computers were characterized by the fact that the operating instructions were made to order for the specific tasks for which the computer was to be used. Each computer had a different binary-coded computer called 'machine language' to operate. This made the computer difficult to programme and limited its versatility and speed.

### Second Generation Computers (1950-1963)

By 1948, the invention of the transistor

greatly changed the computer's development. It replaced the large, cumbersome vacuum tubes and size of computers and shrinking ever since. The transistor was out by 1956 and it led to second generation computers that were smaller, faster, more reliable and more energy efficient than its predecessors. The first large scale computer to use this technology was Stretch by IBM and LARC by Sperry-Rand. Throughout the early 1960's there were number of commercially successful second generation computers used in business, universities and government. These computers replaced machine language with assembly language. They also contained all modern day peripherals like printers tape storage, disk storage, memory, operating systems and stored programmes. More sophisticated high level languages such as COBOL (Common Business Oriented Language) and FORTRAN (Formula Translator) came into common use and entire software industry began with second generation computers.

### Third Generation Computers (1964-1971)

Though transistors were clearly an advantage over vacuum tubes, they still generated lot of heat, which damaged the sensitive internal parts of computer. The quartz rock eliminated this problem. Jack Kilby, an engineer with Texas Instruments developed the integrated circuit (IC) in 1958. The IC combined three electronic components on to a small silicon disc, which was made from quartz. Scientists later managed to fit even more components on a single chip, called semiconductor. As a result computer became even smaller. Also, the concept of Operating System came into existence.

### Fourth Generation Computers (1972-1980)

After the IC the only place to go was at large scale integration of components into one

## DTH transmission

The Direct to Home (DTH) services are all set to make an entry in the Indian homes in the near future. This happy development is an outcome of both convergence and upgradation of technology. In DTH the move from C-band to Ku-band means that DTH providers would be in a position to offer up to 100 channels. They would also offer value-added services like interactive media, telebanking, teleshopping, satellite telephony, video-on-demand. The Indian government has said that preferential treatment will be given to Doordarshan over other networks like Star and Zee to operate DTH. To compete with DTH, cable operators would have to switch to fibre optics which can truly compete with the Ku band package. But this involves a huge cost. It takes about Rs lakh for laying fibre optic cables for 1 km. Experts opine that to set up

a viable business one would have to have a minimum base of about 2500 homes to where this cable would reach and usually the radius involved is 2.5km. Internet licences, annual fees to broadcasters and other governmental fees would add to the bill. All this amounts to huge investments whereas presently it takes the cable operators about Rs one lakh per km for coaxial cables. As a fallout of such huge investments, the cable business is likely to become the domain of the big players. Media analysts point out that small and middle level cable operators would either sell out, join hands with the mega players or form corporations. In most European countries and the US, acquisitions has been the major trend and the same is likely to happen in India. There is one exception though. Unlike the West there are hardly any laws to curb monopolies here.

responding to that. The unique needs of effective communication challenges lies in the hands of designers of hardware and as well as software. To capture real life-emotions, scientists of MIT are thinking of a 'wearable' computer, of course they are meant to place in human body. Another area where progress is being done is biometric computing. Biometric system can analyse the body characteristics and on recognition of valid patterns, grant access to system concerned for eg. scanning the finger prints to access the system.

But the technology which is most in demand these days is embedded system. A computer that controls the digital fuel injection system and RPM-sensitive transmission in cars, makes sure that the vegetables are baked just right in microwave and allows the air-conditioners to adjust the ambient temperature and humidity in your room. To the possible amusement, one can use a computer programme without even knowing it. What makes this technology is the micro processor embedded in our technically sophisticated household equipments. These embedded system are computers within. Unlike conventional computers

that have the usual general purpose operating system, an embedded system resides in a dedicated machine and is meant to execute a specific task only.

This is where 'Jini' comes in. After its much successful 'Java' which is now becoming backbone of internet, Sun microsystem has come out with 'Jini'. Jini technology have access to vast array of services, information and other devices from the dashboard of your car. Smart devices will be part of daily life.

It is pertinent to discuss about the negative aspects of computer. Computers are slowly killing the users. Hours spent working on the PC affect the eyes, arms neck and spinal cord. A study came in Illinois, USA, found that 65 percent of professional maladies can be traced to computers.

However, even after all these disadvantages computers are becoming more and more effective and useful in our lives. They are penetrating every area in our life and becoming a necessity for the society. Computers have revolutionised the way of life. Newer technologies are going to make our life still easier. ■



# INTERNET

## The new revolution



The word 'Internet' flashes many images upon the canvas of the human mind. The dominant one may be hundreds or thousand of computers and computer networks connected with each other, exchanging information. This is the hardware aspect of Internet. Its application aspect is the multitude of different services Internet offers, by E-mail and other. Yet another image is that of everyone doing their own thing. Through internet any type of information can be exchanged like text, audio-video on data etc.

Experiments have attempted control and have failed. But, locally ever, information work, through v intr Strangely, of undertaking. The Project-Agency ARPnet. In 1973, Research Project A ch program to in for interlink The object ocals wh mun

developed over the course of this research known as TCP/IP protocol suite, after the initials of protocols developed - Transmission control protocol (TCP) and Internet Protocol (IP).

In 1955, the U.S. National Science Foundation (NSF) initiated the development of NSFNET, which, today, provides a major backbone communication service for the internet. The National Aeronautics and Space Administration (NASA) and US Department of Energy contributed additional backbone facility in the form of NSFNET and ESNET respectively.

"Regional" support for the internet is provided by various consortium networks and support is provided through each of the research and educational institution. During the course of its evolution particularly after 1959, the internet system began to integrate support for other protocol suites into its basic networking facilities. public domain and commercial implementations of roughly 100 protocols or TCP/IP protocol suite became available in the 1980s. During the 1990's open system interconnection (OSI) protocol implementations also became available.

By the end of 1991, the Internet has grown to include over 100 networks in over forty countries with over 700,000 host computers used by over 1 million people.

A great deal of support for the Internet has come from the Federal Government.

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continental Network (CCIRN) which was organized by the U.S. Federal Networking Council (FNC) and the European Research Association pour la Recherche Européenne (RARE) plays an important role in the coordination of plans for government sponsored research networking. CCIRN efforts have been a stimulus for the support of international cooperation in the Internet environment. At present, 60 lakhs computers are connecting 40 million people of 168 countries to internet. Since the use of internet is unlimited, so it is expected that by the end of the century these would be around 2 billion people.

Under the network of internet, there is a host computer at the one end of the network which is called 'node'. These host computers are connected to the network manager through fibre optic cables. These computers are connected to thousands of personal computer, cellular phone, telephone, television etc through coaxial cables and are used for different purposes. Network manager is the central point of this information network. So, in a way acts as a controller to control the transmission of information.

Internet is mostly used for Electronic mail (mail). Messages can be sent to any one connected to internet. This also helped in development of software database, which is the base of internet. With the development of Multimedia, interest of people in Internet increased. Through use of internet and joining of computer, telephone and electronic techniques and development of optical fibre, it is now easy to store and exchange sounds and pictures. So, Internet is a network of computers joined by optical fibres, through which it is possible to send messages, sounds, and pictures with the speed of light.

'Internet' arrived in India on 15th August 1995. For three years from 1995-98 government held the monopoly of providing internet services through Videsh Sanchar Nigam Limited (VSNL). This service was named gateway internet, access gateway (GIAS). The gateways situated in Bombay are connected to network of Europe and US through satellites and cables. But in 1998,

government allowed private companies to provide internet services to people. However, they have to connect with VSNL to connect to satellites and cables. VSNL is also providing the services to students at a reduced rate. The internet is most beneficiary for businessmen, doctors, teachers and scientists. Doctors can consult world famous doctors over various subjects, whereas it will reduce the frequent travels of businessman and help in their transactions.

Internet is a large network which combine small computer networks and stand alone personal computers. At present there are 10 million host computers in the world. Every computer connected to internet has some digital address. Some of the famous networks throughout the world are ARPANET in US, MELNET in US, SERKNET and JANET in UK, HILINET BERNET in Germany, SICALDE in FRANCE. Most of the major computer companies also have their own network, which are connected to internet like VNET of IBM, XEROX INTERNET, EASYNET of DIGITAL, TCP from Hewlett Packard etc. Also all the major universities have connected their network to internet.

Internet is very useful for common people. By sitting at home a person can send letters and cards to the members of the family and friends. They can chat with the like minded people on any particular topic. They can get information on subjects on internet for their studies. Even they can browse through books and libraries on internet. Visiting different websites on internet is known as 'surfing'. Now a days you can do everything in internet. You can do marketing by sitting in your home. There are thousands of cyber shops on internet which sell from flower to even foods on net. A person can watch movies, television, listen songs and radio etc. Internet is fast becoming a part of our daily lifestyle. That's why there are so many shops opening up in big cities which are known as cybercafes. In cybercafes, you can pay money and surf the net. Now a days internet services providers are also providing internet services through cable lines, which are more faster to access. Even there are plans to provide internet

### C-DoT unveils satellite communications system

The Centre for Development of Telematics (C-DoT) has developed India's satellite communications system, INSAT-MSS. This uses transponders in INSAT series and is ideally suited for providing telephone connections in areas where it is not cost-effective to lay the conventional cable-based network. The technology has been developed in association with the US-based satellite communications company, Comsat. INSAT-MSS is currently working in Chorla and Shantidam in Karnataka and is also being installed in Kanwar district in the state. The Department of Telecommunications is planning to induct 1000 satellite phones in its network.

access through cellular phones

But it's the businessmen who are using the internet most and making it more popular. The fast and economically viable way of accessing internet has given a new direction to international business. All the business transactions and purchases that are going on the net is known as E-commerce. The biggest advantage of doing business on Net is that the businessmen don't have to sit for the whole time on the shop and your virtual shop on internet is open 24 hours a day, 7 days a week for whole year. The 'world wide web', is one of the other names of internet. Nowadays there are working on new technologies to make E-commerce more popular among the people. Several Indian companies too have ventured into E-commerce. A person just has to visit the website and he or she can shop for anything out there be it clothes, flowers, household objects and even electronic equipments. Another popular website is 'Bababaza.com' where you can order any type of vegetable from the world and it would be delivered at your home at a very small price.

Internet is also a great help to physicians and doctors. They can consult directly with other doctors round the globe. Through video conferencing they can supervise the operation in any part of the world. Video conferencing is technology through which you can see and listen any

person. Due to this technology live teleconferences on the internet is possible. In this way a person can get the information at all places by virtually visiting them. One of the first sites to operate in this way is Africa.

Even after getting so much benefit from internet, scientists and engineers are not satisfied with these facilities. Therefore, this has led to a new technology in internet, which is more effective, fast and useful. This new form of internet is known as 'Internet-3'. Due to Internet-3, a person can access internet at the PC from anywhere.

Internet-3 is a technology which is based on a new kind of mouse called 'Internet-3 wheel'. You just have to turn the wheel and the website would start. To make this possible, Microsoft are working with the help of Intel, Motorola and Ford. Motorola is working on a technology by which one just have to speak the name of the website and the PC will go directly to the website without typing any word. Due to Internet-3 the quality of video transmission will increase greatly. At present the quality of video transmission is not so good as it should be. When Internet-3 arrives video transmission would be so good that it would feel like that the person you are talking to is sitting just next to you, though there is a distance of several thousand kilometres between them. This is known as 'Telepresence'. With the arrival of Internet-3 it would be possible to watch a movie without installing it on your computer. The biggest advantage of the new version of the Internet-3 the bandwidth requirement will be removed. We would be able to download the latest edition of books from the digital library without downloading the whole book.

In India, Internet was started by Department of Electronics 'ERNET', established for research and education. All the five IITs and Indian Institute of Space in Bangalore were the first to connect to ERNET. ERNET has the facility of E-mail, File transfer, Telnet, Voice Gopher, Archive and so on. Sometime ERNET and NICNET with their network of libraries round the country started several projects. 'Calibnet' in Calcutta, 'Delnet' in Delhi, 'Bomnet' in Bombay were the major networks.

# SUPERCONDUCTIVITY

The flow of electrons is called current and the materials in which the electrons flow is called a conductor. Copper, mercury, aluminium are good conductors whereas glass, rubber and wood are bad conductors or insulators. Materials that don't conduct electricity better than copper are called semi conductors.

In a world plagued by energy crisis, the concept of superconductivity has really come about as a boon to mankind. We know that conductors are mediums that allow electricity to flow through them. However due to the resistance offered by the medium, the current carrying capacity of the medium is almost reduced to half its capability. It has been known that temperature is a factor that contributes to this resistance hence if the temperature of the carrier could be lowered to absolute zero ( $0^{\circ}\text{K}$  or  $-273^{\circ}\text{C}$ ), these carriers could be made super conductive because at this temperature they lose all resistance. This looks quite a simple solution

but it entails heavy cost and is a very difficult process. Researchers, the world over, are trying to grapple with these problems and also seeking new areas for the application of superconductivity.

It was in the year 1911, that a Dutch physicist Hike Kamerlingh Onnes, discovered 'Superconductivity'. While studying the variation of electrical resistance of mercury with temperature, he found that near a temperature near absolute zero the resistance dropped down to a very small value. It was however found that this transition to superconductivity involved more than simply very high or infinite electrical conductivity. The next step towards unfolding the mystery of superconductivity took place in 1933, when W. Meissner and R. Ochsenfeld found that a superconductor placed in a magnetic field expelled the field from the interior of the conductor. Later, it was found that superconductivity needed a temperature of 4.2K, which was the point at which helium gas liquefies. Thus

## Two super heavy elements 118 and 116

A group of scientists at the Lawrence Berkeley National Laboratory, USA, have created two new elements. They are named element 118 and element 116. These two super heavy elements were produced by using a reaction, which according to the scientist who led the team, was not considered for trial until a few months ago. They were created by accelerating a beam of Krypton 66 ions into an energy level of 449 million electron volts and directing the beam into lead 208 which yielded heavy compound nuclei. The discovery of these two elements opens a wide range of possibilities using similar reactions.

The element 118 has 118 protons and 175 neutrons and thus its mass number is 293. So far Uranium with mass number 238 was the heaviest element found in nature. Both these artificially created elements are transuranic elements and are short lived. However, these artificially produced elements help scientists understand more about the chemical properties of heavier elements beyond uranium and gain insights about the structure of atomic nuclei. Within a millisecond after its creation, the element 118 nuclei decay by emitting an alpha particle. What is left is an isotope of element 116 whose mass number is 269. (Neutrons 173). The derived element, that is element 116, is also radioactive. It also decays through emission of alpha particle, thereby creating an isotope of actin 114. However, what is interesting is that the decay energies and lifetimes measured for these new isotopes provide strong evidence for the 'island of stability' which was predicted way back in the 1970s by Glenn Seaborg, the renowned Nobel laureate scientist. This invention is a culmination of three decades of search of that 'island of stability'.

the superconductive devices had to be submerged in liquid helium. The main bottleneck was the high cost involved in such a process. The discovery of liquid nitrogen as a replacement for liquid helium cut down the costs magnificently. It was also found that superconductive materials like lead, mercury and tin lost their capability as soon as enough current flowed through them to generate magnetic fields. Further research with ceramics, the alloys of oxides of niobium and titanium, proved that these kept their conductivity despite strong magnetic fields. It was in 1973, that Karl Alex Muller of Zurich laboratory decided to work on metallic oxides called ceramics. His efforts inspired the Chinese and the Japanese. Paul C.W. Chee of Houston university found that superconducting materials got damaged when their temperature was raised to 52K. Hence he replaced Barium with strontium which has a smaller atomic structure and he could raise the temperature to 54K. Later, with the use of rare earth element, the temperature was raised to 98K.

Today, Thallium, Barium, Calcium, Copper oxide, Bismuth, strontium, Yttrium are considered the most attractive materials for superconductivity.

**Uses and applications:** Superconductors have many advantages over conventional conductors. (i) In conventional conductors, the energy is lost because of resistance is given off as heat which makes the packing of electrical circuits risky. Thus a superconductor with no resistance and consequently no heat building is found suitable to pack the circuits tightly. (ii) They save electricity as energy loss due to resistance offered by conductors is reduced. (iii) They have ability to generate very powerful fields from relatively small superconducting electromagnets. (iv) They can create Josephson function which are capable of detecting minute magnetic fields and also have the advantage of switching 100 times faster. These magnetic field detectors are called superconducting quantum interference devices or SQUIDS. Due to these inherent advantages, superconductors have been put to a variety of uses.

(i) Superconductor electromagnets are used

to generate extremely powerful magnetic fields which are used in atomic colliders.

(ii) Mass drivers are used to accelerate the object to very high velocities.

(iii) Superconductors are also used in magnetic resonance tomography, ECG, and MCG, and in magnetic resonance angiography (MRA), magnetic resonance imaging (MRI) etc. These procedures help the medical experts to take detailed images of organs without having to cut open the skin.

(iv) Magnetic levitated trains float 4 inches above their tracks and hence no friction is involved which could have limited their speed. These so-called 'Bullet Trains' move at very high speed up to 500 mph.

**Research in India:** Acknowledging the importance of superconductivity, a programme Management group was set up by the government in 1987. It was soon replaced by the National Superconductivity Science and Technology board in 1991. Research work was entrusted to DRDO, CSIR, and IIT's. The areas of research work included improvement in critical temperature, workability of Yttrium, Bismuth, Thallium, QNG and MTMG techniques, SQUIDS, HGMS etc.

The National physical laboratory, New Delhi has developed a SQUID at liquid Nitrogen temperature of 77K. They will help in geological prospecting and biomagnetism. Similarly, Superconducting magnetic ore separators are being used in places like Kudremudh etc. In yet another field, superconducting compounds called monophasic compounds with a critical transition temperature of 110 K, 90K and 80K have been obtained. The highest critical transition temperature of 110 K has been reached for the compound bismuth, strontium, calcium, copper oxide. In a major development, Bharat heavy electricals limited, Hyderabad have built and tested the country's first superconducting generator. The generator is cooled by liquid helium and has a capacity of generating 2000 amperes. It has succeeded in cutting down energy loss but the use of liquid helium is proving very costly and efforts are on to substitute it with relatively cheaper liquid Nitrogen. ■■

# ENERGY RESERVOIRS

**S**ocial and economic development of any country is directly proportional to the development of energy resources of that country. Industrial development is impossible without energy. Science and Technology is at the root of all power development projects. However the present stock of energy resources of the world is limited and the world can be benefited from this stock only for few coming decades. On the other hand, the consumption rate of energy is increasing day by day because of technical advancement and increasing population. Sources of energy have been getting particular attention all over the world in the face of the realization that some of them are non-renewable. Hence the mankind is searching new source of energy and the development of renewable sources of energy along with the rational use of existing non-renewable energy and their conservation.

The ultimate source of almost all forms of energies that we use today is the energy that comes from the Sun by radiation. This energy is converted by plants into substances, which enable them to grow until they are in turn consumed by animals. All our chemical fuels like wood, coal, oil and natural gas are derived from plants and animal life that grew because of the sun. The sources of energy have been diversified. The non-renewable sources are those materials among with natural resources, which are exhaustible and can not be replaced once they are used. In this group comes the conventional sources of energy-fossil fuels such as coal, oil and gas which together supply 93% of the total world energy. Waste products of these fossil fuels while converting into energy caused heavy pollution. The renewable sources of energy are solar, tidal, geo-thermal, wind, water and bio-energy. Atomic minerals also form a source of energy and with the use of fast

breeder reactor technology, could be called as inexhaustible source. However it has its own kind of waste disposal and pollution control.

## Conventional Sources of Energy

### Coal

Coal is one of the most important sources of energy and is used for various purposes such as heating of houses, as fuel for boilers and steam engines and for generation of electricity by thermal power plants. It can be made into gas, being gaseous and liquid fuels. Coal has also become a precious source of production of chemicals of industrial importance and of fertilizers. All fossil fuels, namely coal, oil and natural gas, are generally considered to be the result of decomposition and conversion of plants and animals living millions of years ago.

When the plant dies, if gets decomposed by combining with the oxygen present in the atmosphere to form carbon dioxide and water and the plant matters rot away. The plant matter is attacked by anaerobic bacteria, which decompose it, pure free oxygen to form in this process both hydrogen and oxygen escape and so only, and gradually the carbon concentration in the residue goes on increasing. With the passage of time the matter gets compressed by the additional weight of accumulating dust, stone and other matter and



forms a spongy mass called peat. This was the first stage in the formation of coal. After the passage of over 250 million years, due to compression, more gases were forced out and the proportion of carbon went on increasing further. In this way, the peat converted to various forms of coal such as lignite, sub-bituminous coal, bituminous coal and anthracite. Most of the coal, which is obtained today, is from underground mines of different types depending on their distance from the Earth's surface.

Coal comprises three-fourth of the total fossil fuels of the world. India has large proven resources and still larger geological reserves. In 1972 when the coal mining was nationalised in India the annual production was of 72.7 million tonnes which again crossed the 300 million tonnes mark in 1996-97. India ranks third in terms of world production of coal. In India there would be enough coal for more than 100 years; however it is concentrated largely in the eastern and central parts of the country. Transportation of coal to areas far from the coalfields poses a major problem. Furthermore burning of coal for energy gives rise to carbon dioxide and also smokes which contains sulphuric, nitrogen oxides and other pollutants. Concerns have been growing about environmental and health damages these pollutants could cause if very large numbers of coal based power stations are built even with pollution control features. Similarly there is worry that if large amount of carbon dioxide is sent up into the atmosphere, there could be adverse effects on the atmosphere as well as possible heating up which could alter the weather unfavourably. For all these reasons, even though absolute reserves of coal may last for quite some time in areas far from coalfields other sources of energy such as nuclear energy and other renewable forms of energy have to be developed increasingly.

## Oil and Natural Gas

Like coal, petroleum is also derived from plants (and also from dead animals that lived in remote past). Natural gas has also been produced

in the Earth's crust by similar processes and this is also a combustible fuel. Oil as lamp fuel is supposed to have been used on the island of Santa in the Ionian Sea in the year 400 BC. The Burmese were drilling oil in A.D. 100. But the exploitation of oil on a large scale really started after 1860, the year when the first commercial well is reported to have come into existence. By the year 1880, crude oil accounted for 13.2 percent of all mineral fuels consumed. With the discovery of oil and its refined products such as gasoline and diesel, new engines and machines came into existence and productivity increased. Indeed this was a period of the industrial revolution. Oil and its derived products are very convenient and versatile as fuels and can be easily transported.

A large part of the cheap supply of oil came from the Arab countries. In 1973 these countries and other oil producers soon after increased the prices of oil by a factor of three or four and even withheld supply of oil to certain industrialised countries. This led to profound shock in the economics of the entire world. This energy crisis shocked the world a realisation that oil and indeed the other fossil fuel resources on the earth are finite and will rapidly exhaust if steps are not taken to reduce their consumption and to find alternative sources of energy.

In India, efforts made by the Oil and Natural Gas Commission (ONGC) and Oil India since the late 50s have led to the identification of a number of oil and gas deposits both offshore and onshore. The onshore fields were mainly discovered in the Bombay, Gujarat, Assam and Arunachal Pradesh and the offshore fields in the sea were notably the Bombay High fields such as North and South Basin and South Tapti. Oil and gas has also been discovered in the Godavari Basin and on the East Coast. The new exploration strategy developed during the first two years of Seventh Plan places emphasis on intensive exploration survey and drilling in order to add to petroleum reserves and to augment production as early as possible. At present there are 12 refineries in the public sector in India. The Burmah-Shell refinery at Trombay

and Caltex Refinery of Visakhapatnam together with their marketing associates were taken over by the government in 1976. The Burmah-Shell Refinery was renamed as Bharat Petroleum Corp Limited (BPCL) and Caltex Oil Refinery Limited was amalgamated with Hindustan Petroleum Corporation Limited (HPCL) in March 1978. The public sector refineries at Gowahati, Barauni, Koyali, Haldia, Digboi and Mathura are owned by the Indian Oil Corporation Limited (IOC) while those at Cochin and Madras are owned by the joint sector companies. The government has already approved the proposal to set up a refinery of 60 lakh tonnes capacity of Karnat and has also approved the preparation of the detailed project report for Mangalore refinery. In 1995-96 the production of crude oil in India was of 35.15 million tonnes but it was not sufficient to meet the demand. Hence every year a large chunk of total consumption of crude oil is imported mainly from Arabian countries.

Natural gas is emerging as an important source in India's commercial energy scene in view of large reserves of gas that have been established in the country, particularly in South Bassom off West Coast of India. Natural gas is also making significant contribution to the household sector by way of LPG extracted from associated gas. About 30 percent of the country's output of LPG comes from this source. By 2001-02 the production of natural gas in India is likely to touch the mark of 20 bcm per year. By that time Iran & Oman will supply 20-20 bcm. It is estimated that by 2002 the consumption level of natural gas in India will be of about 20 bcm per year. If the production level of domestic natural gas remains near about 30 bcm. Per year the present reserve will serve for another 25 years. In view of growing importance of natural gas in the country the Gas Authority of India Limited (GAIL), a wholly owned Government of India undertaking was established in 1984 with an authorised capital of Rs. 500 crore. The main objective of the company are procuring, marketing, transportation and distribution of natural gas in all its forms. GAIL is now implementing

## BARC achieves another milestone

The Bhabha Atomic Research Centre (BARC) at Mumbai achieved another milestone when it commissioned the country's first Nuclear Solid Storage Surveillance Facility (NSSSF) at Tarapur. The NSSSF was the second step towards management of High Level Radioactive Waste (HLRW) of the three-level strategy for management of the HLRW. India would be the fourth country in the world to have such a facility after UK, France and Japan. The facility would be used to vitrify (glassify) the HLRW in a stable and inert solid matrix for immobilisation to store the inert solid waste canisters for 25 to 30 years under constant cooling and surveillance and subsequently to dispose the waste canisters into the deep geological formation.

The Hagra-Bijapur-Jagdishpur (HBJ) pipeline project of 1730 km length to meet the feedstock requirements of six fertilizer plants (four in U.P. and one each in Madhya Pradesh and Rajasthan) and fuel requirements of two (one in Andhra Pradesh and one in Aizawl, U.P.) of the three power projects being set up along the pipeline. ONGC has established three research institutes namely the Keshavnagar Malaya Institute of Petroleum Exploration, Institute of Drilling Technology and the Institute of Reservoir Studies at Dehradun and Ahmedabad respectively.

In the petroleum sector, we have the Petroleum Conservation Research Association (PCRA), which has been engaged in conservation of petroleum products since 1970. The PCRA organizes field activities, education campaigns and research and development activities in the industrial, transport, agriculture and domestic sectors. The Ministry of Petroleum and Natural Gas is also implementing a number of programmes for the production and development of petroleum in the country. The Bongaigaon Refinery and Petrochemical Ltd (BRPL) was incorporated in 1974 as a fully owned Central Government enterprise with the objective of production of refinery and petrochemical compounds consisting of hydrocarbons, etc.



Teraphthalate and PSF units. Engineers India Ltd. a government owned undertaking since 1967 renders design engineering and technical consultancy services to organisations both in public and private sectors in the field of petroleum refining, pipelines, petro-chemicals, fertilizers, chemicals cement, paper, power, ocean engineering and other processes relating industries.

## Hydro Energy

Hydro energy can also be considered as an indirect source of solar energy. The potential energy of water stored at a height is converted into mechanical and electrical energy as this water falls and drives turbines and electric generators. Hydro energy can also be tapped from flowing and falling water, as in the case of the Himalayan hills.

Today about 23 percent of the total electric power in the world comes from hydropower. The total hydro-electric potential in India has been estimated as about  $472 \times 10^9$  kilowatt hours or 472 terrawatt hours normally. But we have exploited only a little more than 16 percent of the total potential. In addition it is also estimated that an annual energy generation of about 25 terrawatt could be obtained economically through mini and micro-hydel, coal drops and other possible low head developments. A centre for the development and demonstration of alternate small hydro technologies has been set up at Roorkee University by the Department of non-Conventional Energy Sources for development of newer and more economic designs of micro-hydel units, water mills and hydrams. Several field projects in Haryana, Himachal Pradesh, Uttar Pradesh and Jammu and Kashmir are being initiated to utilise the potential availability of canal drops, falls, run-of-river systems etc.

Electrical energy generation by hydro-electric power plants is not polluting and uses a renewable source of energy. However there are several problems associated with the construction of giant dams on natural waterways. The construction of such dams alters the downstream ecology as well

as that in the lake area behind the dam. Huge areas get submerged, flora, fauna or any agricultural produce of this land get affected. People and towns in this area have to be removed and relocated, causing disturbance and sometimes hardship. Again the time taken for such larger schemes to fructify is usually quite long. For these reasons emphasis is now being given to supplement such large projects with small size hydro projects called mini-hydro or micro-hydel projects which can be built on small streams and even on canals without large dams.

The National Hydro-electric Power Corporation (NHPC) was incorporated in 1975 with the objectives to plan, promote and organise the integrated development of hydro-electric power. Some important hydro-electric power projects constructed by NHPC are at Salal and Bulhasti (both in Jammu and Kashmir), Tanakpur (Uttar Pradesh), Chamera (Himachal Pradesh), Baira Siul (Himachal Pradesh) and Loktak (Manipur).

The National Projects Construction Corporation (NPCC) was set up in 1957 as a joint venture of central and state governments as a construction-contracting agency for the execution of multipurpose river valley projects, power projects and other heavy engineering projects. As a part of diversification plan the Corporation proposes to take up the work of transmission lines also.

## Urja Grams

India is basically a rural based country. The non-availability of proper energy sources is one of the major reasons for the under development of our rural areas. The energy crisis in rural context is basically two fold threat of eco-system by the larger use of non-commercial energy sources and inadequate supply of electricity in rural areas. Under these circumstances, the Department of Non-Conventional Energy sources has taken up a unique programme on Rural Renewable Energy System (RRES) designed to make villages self sufficient in energy. This system is called Urja Grams, and are based on local renewable energy sources and being environmentally benign, cost

ensure availability of electric power as well as cooking energy at the village level and spearhead all round rural development.

In an Urja Gram the renewable energy devices can find their applications to meet the just energy requirement. For example, a biogas plant working on locally available animal and agricultural waste supplies the cooking fuel and also fuel for lighting or for irrigation wherever required. Requirement of drying, cooking, hot water, etc. Can be met by Solar Thermal Systems.

Biomass gasifier based power generation system utilizes that fast growing woods of energy plantations. Similarly photovoltaics can be used effectively for lighting, irrigation, educational and recreation purposes. The improved stoves can make the village smokeless and also conserve a huge quantity of wood.

The first such project has been set up at Masudpur near Delhi where community biogas plants provide cooking gas to village household a photovoltaic system power televisions, radio and tube lights; a wind mills, in combination with a biogas engine alternator supplies drinking water to the village. The sale of enriched manure provides additional revenue. Another project has been set up in Solojipally, an uncertified village in Medak district of Andhra Pradesh. The unique feature of this project has been the formation of an Energy co-operative. The cost of running of the system will be shared by the members of the Co-operative Society.

### Power From Salinity Gradients

When two bodies of water with having different amounts of salt are meet together, energy can be generated due to difference in osmotic pressure. If a mixture of salty and fresh water put against a membrane fluids of different salt concentration tend to flow through at a different rate. Thus it acts somewhat like a battery with electric potential appearing near the interface. It is estimated that electric potentials of the order of millivolts can be generated at the interface of fresh water and sea water. It is possible to connect

### Dump sites identified

The Bhabha Atomic Research Centre (BARC) has identified sites in Rajasthan and Madhya Pradesh where India's nuclear wastes are to be permanently buried. The wastes would be buried in a site in any one of the above states. A vault dug out in granitic rocks 800 metres below the ground will hold all the wastes from India's nuclear facilities. The Geological Survey of India has been actively involved in the task to locate safe areas for the burial.

The major steps involved in burying nuclear waste are as follows

- The radioactive atoms are embedded in a tough, boro-silicate vitrified glass and each glass block is enclosed in a stainless steel box. Two such boxes will be put inside another stainless steel box.
- The stainless steel box will be stacked in a vault, which will be instrumented with equipment to monitor radioactivity and temperature.
- The vaults will be buried 800 mts below the surface of the ground. The areas must be far from ground water, mineral bearing areas and populated region.

cells in series to generate additional voltage. The electricity can then be tapped as in batteries. This type of energy conversion is of interest particularly at places where fresh water flows into the ocean or in water bodies with high salt concentration, for example the Dead Sea, the Great Salt Lake or Salt pans along desert coasts. The work on exploiting this method of energy is however still in the relatively initial stages.

### Tidal Energy

Tides are created by the combined gravitational effect of the Earth, the Moon and the Sun. Though the tide is the universal phenomenon of the earth's sea-water body, some regions are more favourable for the establishment of such plant for the commercial production of tidal energy. Primary requirements for the construction of an installation having a capacity over 200 MW, are (i) an average tide of 5-12 metres (ii) the possibility of

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linkage to a grid in order to accommodate the variable power output of the tidal plant; (iii) favourable geographical location and favourable socio-economic and ecological conditions. Bulb type turbines as used for conventional hydro-electric stations have proved to be reliable for generating power from the tides.

In India, three potential sites have so far been identified, namely the Gulfs of Kutch and Combay on the west coast in Gujarat and the Sundarbans along the east coast in West Bengal. "Central Electricity Authority" in India has the overall responsibility for developing it. A power plant of 600 MW capacity is proposed to be set up in the Gulf of Kutch. Dykes / bunds of height 5 m and the length 40 kms would be constructed to connect barriers across the Kandla Creeks. The mean tidal range at the proposed site is of the order of 5.3 m, which may get modified after the construction of barrage.

### **Geothermal Energy**

Geothermal energy is the exploitation of heat energy of earth within the 10 km of the earth's upper crust. Geothermal energy can be processed for generation of power where the geothermal fluid has a temperature of 130°C. Geothermal manifestations are widespread in India in the form of 340 Hot Springs localities. Only a few direct utilization schemes have been launched by various agencies; they are in Puga, Chhumuthang, Manikaram and Bakreshwar. Of these India's most promising geothermal field is in Puga valley in Ladakh. There are number of geothermal wells drilled in the valley. Tatapani in Madhya Pradesh is another promising geothermal area in India. "National Aeronautics Ltd" is responsible for its development in India.

### **Magneto Hydro-Dynamics Power (MHD)**

MHD power generation is a direct energy conversion method where thermal energy is directly converted into electrical energy instead of thermal, mechanical, and electrical as in the

conventional power plants. In this process coal is burnt to produce hot and high speed gas which are allowed to pass over a strong magnetic field and this results in the direct conversion of thermal energy into electrical energy. It is capable of achieving net efficiency of around 60% while in the conventional power plants it is only 35%. The tests conducted so far have not identified any technical barrier to the development of MHD except of financial constraints. With the help of financial and technical assistance provided by former USSR, BHEL & BARC have established a joint plant at Tiruchcharapalli in Tamil Nadu in 1993 because Tamil Nadu has the poor quality of Lignite coal and MHD can be more efficiently used in power generation through this process.

### **Bio-Energy**

Bio-energy includes those processes where biological forms of matter such as plants, vegetables, enzymes etc. provide the basis for energy or its conversion from one form to another form of energy. The widest use of bio-energy is the traditional way where wood plants and agricultural matter are directly burnt to provide heat. Vegetable bio-mass is a new name for plant or organic matter wherein solar energy is trapped and stored through the process of photosynthesis in which carbon dioxide and water are transformed and form energy rich organic compounds.

Biomass covers a wide range of materials encompassing all kinds of animal, organic and synthetic wastes and a special variety of vegetation - wild grass, shrubs and some plants and trees specially cultivated to derive energy and useful products and this biotechnology is one of the oldest manufacturing activities, having started since man learned to produce bread, wine, beer and cheese. However only recently the process is well understood and the mankind has started to move in the right direction to make better use of this revolutionary technology. The major components of Biomass are mainly carbohydrates - sugars, starches and cellulose - with variable nitrogen and phosphorous contents. Animals, organic

and synthetic wastes cover the balance components. There are three basic systems for conversion of Biomass into Energy Resources.

- Combustion Pyrolysis – Chemical decomposition through high temperature. (upto  $500^{\circ}\text{C}$ ) in partial or total absence of air to produce fuel gas, oil (methanol) and charcoal.
- Biogasification – Anaerobic digestion of Biomass, to produce combustible gas (biogas) comprising of methane, hydrogen etc.
- Fermentation – Conversion of sugar and starch into alcohol to produce Ethanol and Solid Residual Fuel.

Biogas has a wide range of applications, which includes cooking, running engines and generation of electricity through cogeneration of Gas Turbines. The slurry produced in the process of biogas generation is an enriched manure. Ethanol has a competitive market for Food and Fuel (Gashol) Applications. The potential of Biomass in India is estimated as 1250 MMTPA which is about one-eightieth of the global total. Energy available from such a massive biomass is equivalent to about 300 MMT of oil.

Apart from energy demand aspects there is an urgent need to cultivate high density and short rotation species of deciduous trees and shrubs to curb the violent erosion of top soil with uncontrolled and reckless deforestation in many parts of the country. Non-agricultural deforested and marginal lands may thus form an alternative land resources for cultivation of this multi-purpose biomass so as to avoid competition with food crops. There are immense benefits with such a planned biomass cultivation. It offers clean fuel/energy and maintains an unpolluted environment, reduces carbon dioxide content in the atmosphere and improves soil and water retention capacity of the marginal and threatened lands.

Wasteland and other non-agricultural land can be utilized for planting fast growing varieties of trees. The wood harvested each year can be converted by direct combustion or gasification to power and charcoal. It has been estimated that about 1000 hectares can provide about 3 MW of

power, besides providing fuel wood or charcoal which can support the energy needs of a population of 125-150 families. In India even if one fifth of the estimated 80 million hectares of barren and wasteland can be covered by such a programme, a generation capacity of about 48000 MW can be created, which is considerably more than the entire installed power capacity in the country today from all thermal, hydro and nuclear sources. This would also provide fuel wood and charcoal to meet the cooking needs of the rural poor, provide green biomass cover in and zones and raise rural income. The investment cost for such projects could be only about 14000 per KW. The EPP programme has already been taken up by the Department of Non-Conventional Energy Sources. Under this programme, plantations of several quick growing species have been set up at various places of the country. This would not only yield fuel for power but also help providing timbers restore fertility of the land, halt deforestation, prevent erosion, reduce flooding and improving micro-climate.

**Biogas** – Biogas is a clean, unpolluted and cheap source of energy in rural areas. It contains 55 to 70 per cent methane, which is inflammable. Biogas is produced from cattle dung in a 'Biogas Plant' commonly known as 'gobargas plant' through a process called 'digestion'. The manure value of the dung is enhanced in the process. A biogas plant helps in obtaining both cooking fuel and enriched manure from the same quantity of cattle dung. Village sanitation is also improved. Environmental conditions are upgraded as the forest cover is protected by saving fuel wood. Biogas is also used for lighting purpose. It could also be used for running engines of small horse power. Large scale promotion of biogas plants helps to generate employment for masons, village technicians and unskilled workers in rural areas.

The National Project for Biogas Development (NPBD) is being implemented by the Department of Non-Conventional Energy Sources in co-operation with State Departments, State Nodal Agencies and Non-Governmental Agencies. NPBD caters the promotion of family type biogas plants.

was started in 1981-82. The broad objectives of the project are (a) to provide energy in a clean and unpolluted form (b) to produce enriched manure to supplement the use of chemical fertilizers (c) to bring improvement in the life of rural women folk and children by relieving them from drudgery, (d) to improve sanitation and hygiene.

Setting up of community and institutional biogas plants was initiated in 1982-83 to provide benefits of biogas technology to weaker sections of society also, who otherwise cannot afford family type biogas plants. The other objectives are (a) to utilise alternative feed stocks such as kitchen waste, poultry droppings, water hyacinth etc for production of biogas, (b) to optimise use of biogas for meeting not only cooking fuel demand but also motive power or electricity requirements for drinking water supply, irrigation street lighting etc. This programme provides financial assistance upto 90% of the capital cost of village based community biogas plants. Plants set up by Central and State Government institutions, co-operatives or Trusts tied to such bodies are eligible to receive financial assistance upto 70% of the capital cost.

## **Hydel Energy**

Although India has the technical expertise to build large dams and produce energy, the energy produced is not quite cost effective. Harnessing the country's rich hydel resources through the development of micro, mini and small schemes is another sector, which shows promise. The Ministry of Non-Conventional Energy Sources (MNES) has set a target of 600 MW capacity for the Eighth Five Year Plan. According to estimates an overall potential of about 10,000 MW can be harnessed through small hydel projects. Most of the small hydel power potential in India is concentrated in the hilly areas. At present UNDP/GEF Project are fully operational in the field of hilly-hydro power development. Portable sets have been distributed to communities in hilly areas. Various Joint Sector Companies for turn-key planning and execution has been formed. Liberal assistance provided for survey, investigation feasibility reports

and project execution has been provided to develop the small hydel power projects in India.

## **Hydrogen Energy**

Hydrogen is a versatile fuel and can play an important role as an alternative to conventional fuels provided its technical problems of production, storage, transport and safety can be resolved satisfactorily. Hydrogen is already being produced in enormous quantity throughout the world basically from hydrocarbons. One of the most attractive features of hydrogen as an energy source is that it can be produced from water which is abundantly available in nature. Apart from the established technology of reaction of water (steam) with coal in high temperature and electrolysis of water, photo-chemical, photo-electrolytic and photo-biological approaches of production of hydrogen can also be intensely studied.

Hydrogen has the highest energy content per unit of mass of any chemical fuel. It has a broad range of application too. Hydrogen can be burnt for residential or industrial heat, it can be used to generate electricity through combustion engines or through fuel cells. Hydrogen is also a raw material for chemical industry. It can replace coke as a metallurgical reductant. Liquid hydrogen can be used for automobiles, aircraft etc. Hydrogen has a number of unique properties and so can be treated as an important source of energy once the economy is favourable. It can be easily stored and cheaply transported in pipelines are available for metal hydride storage of hydrogen. Several metal alloy compositions for this purpose have already been identified whose large scale production technologies are well established. Hydrogen is also a non-polluting fuel. In burning hydrogen no carbon dioxide is added to air. Hydrogen is also interconvertible to various forms of energy. Intensive efforts are being made throughout the world including India to solve technical and economic problems relating to various aspects of hydrogen as an energy source including its safety. Probably it is not impossible to conceive of a time when hydrogen could replace petroleum.

## Nuclear Energy

Nuclear energy can be obtained both through fusion and the fission processes. Enormous amounts of energy is released from small quantity of fuel in both these processes, e.g. If one tonne of Uranium is totally fissional, it can theoretically yield energy equivalent to about 3 million tonnes of coal.

**1. FUSION** The source of power throughout the existence of the Earth is the result of fusion energy from the Sun. Fusion energy from the Sun is produced by the thermonuclear fusion of two hydrogen atoms ( ${}^1\text{H}^1$ ) to form an atom of deuterium ( ${}^2\text{H}^2$ ) which fuses with another hydrogen atom to form an isotope of helium ( ${}^3\text{He}^3$ ) which in turn fuses with another helium isotope to form an ordinary helium atom and two ordinary hydrogen atoms. The by-product of this continuing process is the release of huge amounts of energy which reaches us in the form of solar radiation. There are similarly other nuclear reactions where two nucleus can be fused together to give large amounts of energy as a by product. Deuterium is considered virtually an inevitable part of any fuel cycle used when fusion becomes a reality as a terrestrial energy source. The deuterium is an isotope of hydrogen and is found in sea water – about 1 drop to 4.4 litres. One drop of deuterium from sea water.

One pre-requisite for a fusion reaction is a temperature of at least 70 million degrees centigrade. At such a high temperature, the three states of matter – gas, Liquid and solid – no longer exist. All matters in a fourth state, called plasma, consists only of atomic nucleus and free electrons, all flying about a high velocity. This is in fact the state of our Sun's interior and that of the other stars. How can one hope to build a container for a reaction going at a temperature of 70 million degrees centigrade – a temperature at which any material one might use for the container would vaporise instantly? One approach is the "magnetic bottle". By exerting a powerful magnetic force within a tube, it is theoretically possible. They can

also prevent the plasma from touching the walls of the containing vessel. "Tokamak tech" developed by Soviet scientist Lev Artsimovich in 1958 was the revolutionary step in the field of fusion reaction in which strong magnets were used as refractives and the plasma were not allowed to come in direct contact with the magnet wall. "JET-Experiment" (Joint European Torus Experiment) which was the joint experiment of W-Europe and USA, was conducted in the nuclear reactor of Oxfordshire in England in November 1991. JET-Experiment used Tokamak Tech and used Deuterium and Tritium. It succeeded to reach the temperature of 200 million degrees centigrade, which was ten times that of the core of the Sun, at the core of the reactor. It also succeeded in igniting the nuclear fusion reaction for the first time but the reaction could not sustain more than 2 seconds and produced 2 MW of electricity. So for the first time it demonstrated that high temperature could be created and maintained. However it could not maintain the chain reaction.

In India at BARC the research is also going on. TIFR and Shaha Institute at Calcutta are also conducting the research in this direction however it is confined to theoretical level only. "Cold-Fusion" experiment, propounded by Stanley Pons & Martin Fleischmann of Utah University of USA was another revolutionary approach in this direction. It is palladium used as Cathode and Platinum as anode.  $\text{D}_2\text{O}$  was used as electrolytes. But this attempt could not find recognition by world scientists.

When an atomic nucleus undergoes fission, it results in particles, which together have less mass than the original, the difference appears as energy. Fusion of nucleus similarly demonstrates the principle that mass can be converted into energy. If two nuclear of deuterium are forced together they momentarily form an unstable nucleus, which incidentally release either one neutron and become helium or one proton and become tritium. The resulting nucleus has less mass than the two original nuclei: the lost mass gets converted into energy. A reactor based deuterium-tritium fusion



would release 80 percent of its energy in very fast neutrons. These neutrons could heat a jacket of liquid lithium, eventually producing usable electricity from a conventional steam-powered generator. Neutrons would also cause fission in some lithium nuclei, producing tritium fuel for the basic fusion reaction with deuterium.

**II. FISSION :** There are a large number of nuclear power stations operating in the world today. Most of them are based on the fission of the nucleus of Uranium-235 atoms. This nucleus is relatively unstable and can split into two or more fragments when struck by a neutron. This splitting or "fission" yields energy, together with an emission of more neutrons. These neutrons can go on to cause splits in other nuclei producing more energy and more neutrons. This is known as "Chain-reaction". If there is sufficient mass of U-235 in suitable geometry we can get a self-sustaining chain-reaction which can, therefore, lead to continuous production of energy. This is what happens in nuclear reactor which is the heart of a nuclear power station.

The U-235 is an isotope of Uranium but constitutes only 0.7 percent of Uranium found in nature. The rest of the natural Uranium consists of U-238 which is not easily fissionable itself but is termed as a fertile material since it captures some neutrons in a nuclear reactor and converts itself into plutonium. The U-235 captures neutrons and fissions more easily if the neutrons are slowed down as compared with the speed with which they emerge from previously splitting nucleus. Hence in most of the reactors used today a slowing down medium termed as a moderator is also introduced. These moderators should have properties of slowing down neutrons without themselves absorbing too many of these particles. The materials which meet these requirements are heavy water, ordinary water and graphite.

The use of heavy water or graphite as moderators enables Uranium to be used as fuel in its natural form i.e. with 0.7 percent U-235 concentration. If we use ordinary water as the moderator the concentration of U-235 in the fuel has to be

increased above its natural percentage and this is known as "enriched Uranium". Hence we can have reactors based on natural Uranium moderated by heavy water or graphite or reactors based on enriched Uranium moderated by light water. The enriched Uranium is more expensive as fuel but the capital cost of the reactor can be less since light water is much cheaper as a moderator and also light water enables a smaller size reactor core to be used in view of its better slowing down properties.

A large majority of power reactors working today in the world are based on the enriched Uranium fuel - light water moderators combination with U-235 enriched to form about 3 percent of the total Uranium. Production of enriched Uranium, however, requires more expensive and energy intensive technologies, such as gaseous diffusion which separates U-235 atoms from the more numerous U-238 atoms by diffusion of Uranium in a gaseous form through a thin membrane. Other methods being developed for enrichment include the nozzle method and laser enrichment.

India has not so far gone for establishment of enrichment plants. India's first atomic power station, Tarapur, was based on light water as moderator and enriched Uranium as fuel and has been producing large amounts of electric power for the Maharashtra-Gujarat grid since 1969. Several countries like France, Russia, Japan, USA and UK have significant portion of their total electric power generation now based on nuclear power from light water enriched Uranium fission reactors. The problem of radioactive waste disposal and possibility of accidents leading to release of radioactivity have caused concern and opposition in some quarters.

Plutonium can also be made to sustain a chain reaction just like the scarce U-235 that drives nuclear power stations. Thus the non-fissionable U-238 that predominates in natural Uranium can be made possible by yielding plutonium a new energy-producing reactor known as a "breeder". Breeder reactors are so termed because the plutonium produced in them by conversion of U-238 is

more than the U-235 consumed in the process. It is as if fuel is breeding. In case of U-235 Plutonium breeders, neutrons are not slowed down by a reactors and so they are known as fast breeders. However they involve more complex engineering and need special heat removal system (such as liquid sodium or steam coolants) in view of their higher power density.

Thorium is another potential fuel for nuclear fission reactors. It is, however, not fissionable in itself but can be converted, by irradiation, into Uranium-233 which is fissionable. It is possible to envisage first stage reactors producing power and plutonium as by product and second stage reactors using this plutonium with thorium to produce power and U-235. In the third stage U-233 and thorium could be combined and this could give breeding of more U-233 which could then provide a growing U-233 thorium reactor population.

The Uranium resources in India are placed at about 70,000 tonnes of  $U_3O_8$  of which about 15,000 tonnes are considered economically exploitable at current international prices. The established Uranium resources are estimated to be capable of supporting a first stage nuclear power programme consisting of natural Uranium reactors of about 8000 MW of installed capacity. India has also a vast resources, about 80% of total world reserve, of thorium, mostly on the southwestern coast of India.

## Nuclear power policy of India

In the beginning of the VIII Plan it was aimed to produce 10,000 MW of Power by 2000, so as to increase the Nuclear power share in total power production. In order to achieve the above objective the Central government has established Nuclear Power Corporation to coordinate various nuclear power organisations, in 1989. But it was unlikely to achieve this objective particularly after the disintegration of USSR and then the target was reduced to 9000 MW. However still it is not possible in the near future. Indian scientists have planned to achieve the above target in the near future through the development of three

## Nuclear technology to derive potable water from sea

Scientists at the Bhabha Atomic Research Centre (BARC) have developed nuclear technology which can derive potable water from the sea. The technology, once perfected could provide a permanent panacea to perennial water scarcity problem in the states like Tamil Nadu, Gujarat, a few inland areas in Andhra Pradesh and districts of Rajasthan. The technology based on coupling of desalination plants to coastal nuclear power plants will not require the burning of the scarce fossil fuels as also dams and canals. The technology uses combination of multi-stage flash (MSF) and reverse osmosis process for desalination which breeds high purity, ensures sweet water like the one drawn from conventional water sources. The techno-economic viability of this indigenous technology has been proved for big, medium and small size plants during various experiments carried through demonstration plants. The BARC now can provide the know-how for setting up commercial plants for sea water and brackish water desalination.

generations of Nuclear reactors.

- 1st Generation Nuclear Reactors: Will be capacity of 235 MW of less each it will be Pressurised Heavy Water Reactors (PHWR). It will use natural Uranium as fuel and produce Plutonium as its by product.
- 2nd Generation Nuclear Reactor: Will be capacity of 500 MW each it will be fast breeder reactors which will use Plutonium as fuel derived from first generation reactors and will convert Thorium, which is kept as blanket in the nuclear reactor in Uranium-233.
- 3rd Generation Reactors: It will be a fast breeder reactor which will use U-233 as fuel derived from second generation reactor and convert more Thorium into Uranium-233. On the plan is to use vast Thorium deposit found in India.

India has established only 1st generation nuclear reactors at Tarapur, Rajasthan, Madhya Pradesh and Rajasthan. One fast breeder reactor under construction at the grade and located at Kalpakkam.

(Gujarat) and Kaiga (Karnataka). India has also stepped up in the construction of second generation nuclear reactors by establishing the world's first fast breeder reactor at Indira Gandhi centre of Atomic Research at Kalpakkam, which will convert Thorium into Uranium-233 and it has been found perfect for establishing another nuclear reactors of 2<sup>nd</sup> generation all over India.

## Should India depend more and more on nuclear power?

At present, in India, the share of nuclear power in the total power produced is only about 2.6 percent while the share of thermal power and Hydro-electric power are 66 percent and 30 percent respectively. There are many factors, which force India to increase the share of nuclear power in the total power production of the country in the coming future, these are

1. In most of the advanced countries of the world the share of nuclear power is largest in the total country production. For example in France the nuclear power contributes about 70% and also in Germany and Denmark. On the other hand, in case of India it is less than 3 percent.
2. India has uneven distribution of coal deposits - about 70 percent in Eastern India and 25 percent in Central India. Hence thermal power production is cost effective only in these areas. In coal deficient areas the cost of thermal power production is not so economical due to large transport cost.
3. At present level of exploitation coal deposit will last till 2080 AD. On the other hand some industries entirely depend on coal so it should be conserved.
4. Coal in India are of poor quality with high ash content of 40 percent and it cause more degeneration to environment by fly-ash. So India cannot depend on coal for power generation only.
5. The potential of Hydro-Electric Power is mostly concentrated in Eastern India and on the other hand the investment cost is quite high. So there is not much possibility to develop more hydro-power.

6. India has a vast resource of Thorium which is a greater source of nuclear power.

## Atomic energy development in India

Homi J. Bhabha was one of the few Indian scientists who become internationally renowned as nuclear scientists as early as 1940. He was instrumental in founding the Tata Institute of Fundamental Research (TIFR) in 1945. In 1954 a major part of the work on atomic energy was moved to Trombay, where a multi-disciplinary centre for research and development was set up. In 1967, the centre was renamed as Bhabha Atomic Research Centre (BARC) in memory of its founder.

The prime objective of the atomic energy programmes as defined in the Atomic Energy Act of 1948, are the development, control and use of atomic energy solely for peaceful purposes; namely the generation of electricity and the development of nuclear applications in research, agriculture, industry, medicine and other areas. To achieve this objective efforts were initiated to build up a versatile infrastructure of research, facilities, trained scientific and technical manpower, raw material processing centres and the know-how and capability to manufacture nuclear components and electronic equipment to support the atomic energy programme to make India truly self-reliant.

The Atomic Energy Commission, set up in 1948 is responsible for formulating the policy for all atomic energy activities in the country. The Department of Atomic Energy (DAE) set up in 1954 is the executive agency for implementing the atomic energy programme. There are three public sector undertakings under the administrative control of DAE (1) the Indian Rare Earths Limited (IRE) which has set up the Orissa Sands Complex (OSCOM) at Chhattarpur for enhancing rare earth's production, (2) the Uranium Corporation of India Limited (UCIL) with mines at Jaduguda, Bihar and (3) the Electronics Corporation of India Limited (ECIL) which manufactures electronic instruments and equipment for nuclear as well as non-nuclear uses.

The Nuclear Power Corporation of DAE is responsible for design, construction and operation of nuclear power stations. Nuclear Power Corporation is at present operating the nuclear power stations: Tarapur Plant (2x220 MW), Rawatbhatta Plant (2x220 MW), Kalpakkam Plant (2x235 MW, under construction), Kaiga Plant (2x235 MW, under construction). There are five heavy water plants at Vadodara, Rawatbhatta, Telcher, Tuticorin and Thal. Besides a small heavy water plants at Nangal, two more heavy water plants are being set up at Manuguru and Hazira. The Nuclear Fuel Complex (NFC) at Hyderabad fabricates nuclear fuel for the power reactors and produces zircaloy products and seamless stainless steel tubes.

There are three research reactors in operation at the Bhabha Atomic Research centre at Trombay. These are: APSARA (one MW swimming pool reactor), CIRUS (40 MW thermal reactor) and DHRUVA (100 MW thermal reactor). A pool 30 kW reactor KAMINI, containing uranium-233 fuel is in an advanced stage of construction at Kalpakkam. Plutonium fuelled fast reactor PURNIMA-I was built at Trombay in 1972. In 1984, it was modified as a homogeneous or PURNIMA-II which uses uranium-233 fuel in form of a solution. PURNIMA-III is the modification of PURNIMA-II to test the KAMINI core. MA-III is a zero-energy reactor and is the first experimental research reactor to use uranium-233 as fuel.

The Indira Gandhi Centre for Atomic Research (IGCAR) at Kalpakkam carries out research development pertaining to fast reactor technology. The major facility at the centre is the indigenously constructed 40 MW and 13 MW fast breeder Test Reactor (FBTR). The FBTR is a first step in the country's nuclear power programme. It has proved the way for using our thorium resources. A Centre for Advanced Technology has been set up in Indore to conduct research in high technology fields such as fusion, lasers and accelerators. The country's heavy ion accelerator of medium energy capacity called, 'Pelletron' has become fully operational

at the TIFR. Pelletron is based on a tandem Van De Graff accelerator with 14 million volts terminal voltage.

The Atomic Energy Regulatory Board (AERS) was set up in 1985, carries out regulatory and safety functions as envisaged under the Atomic Energy Act - 1962. It lays down safety standards and frames rules and regulations in regard to regulatory and safety requirements. The Board is a functionally autonomous body reporting to the Atomic Energy Commission.

The Fast Breeder Test Reactor with a design capacity of 40 MW thermal and 13 MW electrical power attained its first criticality on October 18, 1985 at the Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam. The commissioning of the FBTR marks the commencement of the second phase of the India's nuclear power programme. The fuel used in FBTR is a mixed carbide of plutonium and natural uranium, the proportion of the latter being 30 percent. Such a composition is being used for the first time in the world. The technology for the fabrication of the fuel was developed at the Radiometallurgy Division of BARC. The next step after FBTR is to design and construct a Prototype Fast Breeder Reactor (PFBR) of 500 MW capacity. The 500 MW size of reactor has been selected to match the size of coal fired thermal power stations and PHWRs. The PFBR will be cooled by sodium as in the case of FBTR but it will use the pool-type concept which is more favoured in recent times due to better safety and more operating experience.

### **Nuclear energy in ninth plan**

Some important steps proposed in under the 9th plan to harness nuclear energy are: (i) design and development of fast breeder reactors, (ii) enhancement of thorium utilisation, (iii) engineering development of thorium based advanced heavy water reactors and machine developments in fuel cycle area and accelerator-based systems and fusion power. Under Nuclear Fuel Development project, the efforts will be on fabrication and facilities incorporating advanced automation systems.

and updating of hot laboratory facilities, greater emphasis to nuclear safety, sufficient emphasis on nuclear research, new national programme on neutron beam research, super conductivity and cryogenics and international programmes related to nuclear physics research with high energy accelerators.

### **Waste management**

No discussion on nuclear power is complete without consideration of safety and environmental factors. These are issues of legitimate concern to the public in the aftermath of the Chernobyl accident and because of the alarming scenarios of nuclear power appearing in the media. More than 99 percent of the total radioactivity in the entire nuclear fuel cycle is generated from the fuel processing plants. To ensure that this highly radioactive waste stream does not pose any hazards to the environment, a three-stage approach has been adopted. First the waste will be incorporated in stable and inert solid matrices. The conditioned waste will then be placed in canisters and kept in a retrievable store under cooling and constant surveillance. Ultimately the canisters will be stored in suitable geological media.

A waste Immobilization Plant for incorporating the high level radio-active wastes generated from the fuel processing plants is set up along with the solid storage surveillance facility of Tarapur. Immobilization involves verification of radioactive waste, which is coded at underground disposal. The canisters in storage will be air-cooled by natural convection and when the heat and the radio-activity in canisters decay due to desired level, they will be transported to a suitable geological formation for ultimate storage. The work on identifying suitable geological formations for ultimate disposal has been completed and a graveyard for storage of nuclear wastes has been established in Trombay.

### **Non conventional sources of energy**

It is a hard fact that for a few years to come, energy would be mainly coming from conventional

sources like coal, mineral oil, hydro, fuel wood, etc. However, alternate sources like solar, wind, tidal, geothermal, etc. should find wide application in future once the technologies suitable for their exploitation are fully developed and the cost of these technologies are adequately reduced. Indeed in the long run, such widespread application of new and renewable source of energy will be necessary since the reserves of conventional fuels such as oil and coal are limited in the world and the pressure on their availability and prices will steadily mount as demand increase. Even in India, at the current level of production the coal is expected to last for only 245 years, oil for 21 years and natural gas for another 38 years. Such alternate sources of energy are renewable by nature and have also the advantage of generally producing energy in a non-polluting form. Thus the twin objectives of energy production and environmental preservation can both be largely met by resource to these renewable form of energy. In order to meet the demand of future the Government of India also established the "Department of Non-Conventional source of Energy" in 1982 for promoting research and development of effective utilization of such renewable energy. For achieving the above mentioned objective "Indian Renewable Energy Development Agency" has been constituted in 1987 to look after the financial aspects involved in the field of R and D of non-conventional sources.

#### **1. Solar Energy**

The Sun provides us enormous amounts of energy in the form of solar radiation-energy that travels in small wave packets called photons reaching the surface of the earth from a distance of 93 million miles. Radiation-energy is released due to thermos-nuclear fusion going on continuously in the sun. The solar energy reaching per square metre of the Earth's atmosphere is called the "Solar Constant" and is equal to 1.36 kW in 17 hours. The total energy being received by the atmosphere is about  $1.5 \times 10^{18}$  KWh per day. It is believed that with just 0.1% of the 75000 trillion

KWh of solar energy that reaching the earth, the energy required by plants can be satisfied. Application of solar energy can broadly be subdivided as follows :

1. Conversion of solar energy into heat
2. Conversion of solar energy directly into electricity.
3. Conversion of solar energy to plants, vegetable or other biological forms and applications solar energy to convert these forms into useable forms of fuel-this may broadly be termed as bio-energy.
4. Indirect application of solar energy such as harnessing of winds, waves, temperature gradients from the ocean etc. All of which are the consequences of incident solar energy.

Solar radiant energy falling on the surface of the Earth in the form of visible lights can be converted into thermal energy. The heat generated in a solar collector can be utilised for variety of applications such as cooking of food, heating of water, drying of food grains and vegetables, wood seasoning, desalination of water, generation of mechanical and / or electrical power etc.

**Solar Cooker :** Depending upon the type of cooker, the temperature in the range of  $120^{\circ}$  to  $300^{\circ}$  C can be attained. This can save 30-50% of commonly used cooking fuels like wood, coal, LPG, Kerosens, etc. The drawback with such cooker is that the cooker has to be directed towards the sun after every 10-15 minutes and if the automatic devices for such tracking are provided, the cost increases. In 1982 India became the first country in the world to start regular large scale commercial production and marketing of solar cooker.

**Solar Water Heaters :** This system consists of Flat-plate solar collector and storage tank. This system has many applications in the domestic and industrial sectors. It can provide hot water for different applications such as in textile engineering, directly or as boiler feed and in the hotels and contains, apart from domestic sector. Today such water heaters are being manufactured by many industrial manufacturers in India and abroad.

**Solar Desalination :** It works on the water heating principle. It can be used to provide water for drinking in areas where only salty or brackish water is available. It can also be used to provide distilled water needed for batteries and other applications. About 3 to 4 litres of pure water can be obtained from one square metre area of the system per day.

**Solar Air Heaters** It can be used for various applications like drying of food grains, vegetables, fruits, wood etc. Products dried in a solar drier are as good, if not better, in quality and food value as compared to those dried in conventional driers. Temperature as high as  $120^{\circ}$  C can very easily be attained with this simple system. This hot air can be utilised to dry any material, such as wood or agricultural crops, increasing the speed and efficiency of such drying several times more than the traditional method of direct exposure to the sun. The heated air can also be used to operate engine.

**Solar Space Conditioning** A number of solar houses have been built in different countries of the world with heating systems comprising of flat-plate collectors and storage units, proper heat distribution and control system. Such systems are normally based on absorption refrigeration cycle. However the cooling of residential and office buildings can also be done by following the solar cooling process.

**Solar Refrigeration** Utilization of solar energy for production of low temperature has been found to be an attractive proposition because the cooling effect is most needed when the sun is shining. Solar cooling is a most required application for developing countries where considerable quantity of food produce are spilt due to inadequate and improper processing and lack of storage facilities.

**Solar Stem Generators** This is done by concentrating the solar radiation using concentrating collectors like parabolic line focussing systems, parabolic point focussing systems or point reflector central tower systems. Temperature as high as  $3000^{\circ}$  C can be achieved. The steam can

2. 在 1990 年 12 月 31 日以前，  
 3. 在 1990 年 12 月 31 日以前，

一、政治：政治是社会的上层建筑，是经济基础的反映。政治的核心是权力，权力的分配和运行决定了社会的性质和面貌。政治制度、政治体制、政治行为等都是政治的体现。政治的进步与否，直接关系到社会的进步和人民的福祉。

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1. 凡在本行开立存款账户的客户，均可向本行申请开立支票。  
 2. 支票的有效期为自签发之日起六个月内。  
 3. 支票的金额不得超过账户余额。  
 4. 支票的签发人必须为账户持有人。  
 5. 支票的收款人必须为本行客户。  
 6. 支票的签发人必须对支票的金额负责。  
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1. The first step is to identify the problem or question being asked.  
 2. Next, gather all relevant information and data needed to solve the problem.  
 3. Then, analyze the information carefully to determine what it means and how it relates to the problem.  
 4. After analysis, develop a plan or strategy to address the problem based on the gathered information.  
 5. Implement the plan by taking specific actions designed to solve the problem.  
 6. Finally, evaluate the results of your actions to see if they successfully solved the problem or answered the question.  
 This systematic approach ensures that you are thorough in your thinking and increases the likelihood of finding a correct solution.

**2. Wind Energy:**

一、政治  
 二、經濟  
 三、教育  
 四、文化  
 五、社會  
 六、宗教  
 七、藝術  
 八、科學  
 九、法律  
 十、道德  
 十一、哲學  
 十二、歷史  
 十三、地理  
 十四、生物  
 十五、醫學  
 十六、農業  
 十七、工業  
 十八、交通  
 十九、通信  
 二十、能源  
 二十一、環境  
 二十二、人口  
 二十三、民族  
 二十四、宗教  
 二十五、藝術  
 二十六、科學  
 二十七、法律  
 二十八、道德  
 二十九、哲學  
 三十、歷史  
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 四十六、道德  
 四十七、哲學  
 四十八、歷史  
 四十九、地理  
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 九十六、宗教  
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1980年，在“六五”计划期间，我国国民经济和社会发展取得了显著成就。这一时期是我国改革开放的初期，各项事业都取得了长足的进步。特别是党的十一届三中全会后，我国进入了社会主义现代化建设的新时期。在这一过程中，我们坚持了四项基本原则，坚持了改革开放，使我国的综合国力得到了极大的增强。同时，人民生活水平也有了显著提高，国家面貌焕然一新。这些成绩的取得，是党中央、国务院正确领导的结果，也是全国人民辛勤劳动的结果。我们将继续发扬艰苦奋斗的精神，为实现四个现代化的宏伟目标而努力奋斗。

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Kautilya's classic Arthashastra, 400 B.C. By the 19<sup>th</sup> century there were about 10,000 of wind mills in Netherlands alone and about 30,000 multi-bladed windmills were manufactured in the united states of America between 1850 and 1940 of which one million are still operating today. Since 1900 wind energy has also been used to generate electric power.

**Wind Energy Conversion :** The shift power from the wind turbine can be utilized for a wide variety of purposes including electricity (AC & DC generation), direct pumping direct mechanical work etc. The most common wind turbine system involves a tower mounted, multi-bladed rotor facing into the wind, rotating around a horizontal axis and turning an electrical generator or a mechanical gearbox connected to its axis. The maximum power that can be extracted from a wind turbine is 59.3 percent.

**Water Pumping Windmills** Small windmills with direct mechanical drive matched to a pump and tank storage are in extensive use in many parts of the world. These hold significant potential for pumping water irrigation, drinking needs etc. In rural areas having low or moderate wind regimes especially in developing countries Improved types of soil water pumping windmills have also been developed in several countries including India.

**Wind electric conversion Systems** Wind energy is a high-quality form of mechanical energy that can be converted into electrical energy with minimal energy losses. Since the rotor of a windmill moves periodically the output may be obtained in the form of alternating current either by using a gearbox or fixing the rotational speed or by allowing speed variations and transforming the generated electrical power to the desired frequency, electronically. Application ranges from small scale use in rural and remote communities interconnected with other power plants to large scale generation of electricity, which is fed into electric utility network. It can also be used for battery charging by driving brushless DC generators.



Energy from the ocean is available in several forms such as ocean thermal energy, wave energy, tidal energy, salinity gradients, ocean currents, ocean winds and bio-mass.

#### Ocean Thermal Energy Conversion

There exist a temperature difference of the order of  $20^{\circ}\text{C}$  between the warm surface water of the sea and the cold deep water and this natural temperature difference can be used to generate energy. In one OTEC plant the warm water from the surface with the temperature of  $24$  to  $30^{\circ}\text{C}$  is brought into one pipe and the cold water at the temperature of about  $4$  to  $8^{\circ}\text{C}$  is brought in another pipe in the depth of about  $1000$  metres. These two pipes are used in conjunction with fluid such as ammonia, propane or hereon. The warm water evaporates liquid ammonia into vapour at high pressure and is made to pass through a turbine which rotates it and generate electricity. The ammonia vapour coming out of the turbine is condensed back into liquid ammonia by cooling it with the cold sea water brought up from the deep part. The liquefied ammonia is then pumped back to the evaporator thus completing the cycle, which can then run continuously.

Energy from OTEC can be converted into either electrical chemical or protein form. These plants could be combined with energy intensive industries like ammonia, hydrogen or aluminium production furthermore. OTEC plants can be combined with aquaculture or desalination for obtaining fresh water. The cold water from the deeper sea which is rich in nutrients can be placed in a lagoon or lake where these nutrients can help to raise fish, oysters or other types of biological life.

Being a tropical country, India has the OTEC potential of about  $50,000$  MW. Mostly on the southern west. The most promising site identified so far is on the Lakshadweep Islands where the necessary geographical conditions for a caressed OTEC plant exist. In these islands the alternative cost of producing electricity by transporting diesel from the main land as is being done at present, is very high. India has also tied up with a US-firm to set up an OTEC Plant in Tamil Nadu.

**Wave Energy :** Movement of large quantities of water up and down can in principle be harnessed to convert into usable form of energy such as electricity or mechanical power. Several types based on floats, flaps, ramps and oscillating air water columns have been worked upon to harness wave energy. It is more reliable than the wind energy because here the fluctuation is less than the wind. However at present, due to infant stage of its technology, the cost per unit of energy converted is high because of the need for special structures at sea, corrosion problem associated with the use of sea water and the problem of transmitting the power onshore.

The tropical coastline of India especially southwest coastline is very suitable for establishing such energy plants. Department of Ocean Development has estimated the wave energy potential in India about  $40,000$  MW. Ocean Energy cell has established a pilot power plant at Vigninjam Kerala, of  $120$  MW capacity during monsoon period and  $30$  MW during non-monsoon period. OEC is also developing five other similar plants at Thangassery in Kerala.

**Energy in the Ninth Plan :** The Ninth Plan emphasised to increase the production of power, petroleum and natural gas, coal and to exploit new renewable sources of energy. Augmentation of energy resources will be taken by sophisticated mechanism in petroleum, natural gas and coal exploration activities and emphasising of potential for hydro and renewable sources of energy.

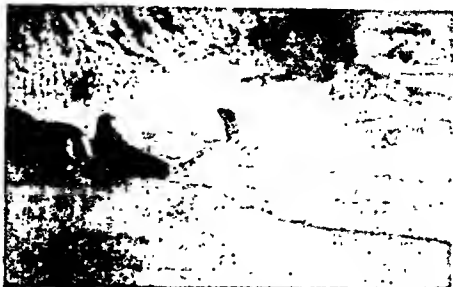
The Ninth Plan put emphasis on (i) developing a commercial outlook among the PSUs, (ii) attracting private sector participation and developing private and public sector competition, (iii) regulatory body for fixing tariff conservation of resources, safeguarding the interest of consumers and protecting environment, (iv) energy-economy intervention, (v) restructuring electricity supply system to make it commercially viable, bankable and professional, (vi) market forces in energy sector is promoted by various reforms in power, petroleum, natural gas and coal sectors. ■■

# OCEAN DEVELOPMENT

Since time immemorial, human beings used ocean for transport, defence and fishing. Fishing still continues to be a major source of food for the people while economic development and exploration have brought more and more productive use of oceans. With tremendous rise in population and consequent depletion of resources on land, ocean is viewed as the last frontier as reservoir of resources both living and non-living. Marine routes refer to the resources that one with the ocean waters or are covered by oceanic water on the ocean bed. It comprises both renewable and non-renewable source of energy.

**Biological resources :** Phytoplankton are the principal plants in the ocean and are the base of the food chain. The distribution of zooplankton which feed on the phytoplankton is world's major fishing areas. Oceans have become major source of food and are more likely to become so in future. Because of its sheer size, oceans will have a larger food potential. Again due to increased population little option is left for agricultural extension on land and henceforth the human population will be under compulsion to move towards ocean to satisfy its demand. Ocean food reserves are nutritionally advantageous or better source of amino-acids in correct proportion, better source of vitamin-B12, low in cholesterol and fat, high in polyunsaturated fats and essential fatty acids.

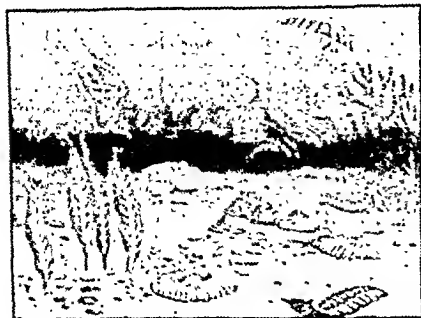
Fish provides about four percent of the total food supply. Modern fisheries are not confined to catching fish but includes many other sea harvests such as whales, seals, pearls, molluscs, sponges and seaweed. In a way, fishing is like mining. It is a robber economy. Major marine fish types are Mackerel, Tuna, Herrings, Anchovies, cod, Haddock, Salmon, etc. Tropical water produces many fish as well but they are less desirable for eating because of their higher oil content. Also concentration of single species are rarely



found in tropical water. Shallow coastal waters are favorable for the fish growth because of plentiful food supply due to penetration of light for photosynthesis. Broken coastlines ideal's condition for the growth of planicton. Broken coastlines with numerous indentation are the favourable fishing regions in the world. Squids occurs in all seas from Arctic to Tropical maritime regions. Krill's are shrimps like organism that live in the Antarctic and are only few centimeters in length. Krill is known for their light producing organs and its total catch is about 20,000 tonnes per year. They renew very quickly without affecting the ecosystem. Phytoplankton and Zooplankton lie at the base of the food chain. Green brown and red alga are used as human food in many parts of the world.

India is a littoral state with a vast coastline of about 6000 km and the Exclusive Economic Zone (EEZ) of about 2.02 million km. About 50 percent of sustainable fishing zone of India's EEZ lies in inshore zone of the less than 50 meters depth. India ranks 8th position in the annual fish catch in the world. In India the marine fish accounts about 56 percent of the total national fish catch. However the annual potential in India is about 10 million tonnes. Intensive prawn farming has been developed at Nellore and improved shrimps farming in Andaman and Nicobar.

**Fresh water resources :** Oceans, rivers and glaciers consist



water supply. Freshwater extracted from the sea is one of the most valuable resources especially for the countries where land water availability is very difficult and costly. Icebergs, another source of fresh water, would be found by some mechanism to the areas where water is needed like Saudi Arabia, California, Australia etc.

Ocean water is neither fit for human consumption nor for agricultural purpose. But it can be converted into fresh water through desalination. The important methods of desalination are:

- (i) **Solar Still** : In this process the sea water is boiled by concentrating solar heat and then condensing the steam as fresh water. In India, in Avnea village of Gujarat such a plant has been established with the capacity of 5000 lt per day.
- (ii) **Electrodialysis** : In this method ion-reflective membrane is used for the desalination of brackish water.
- (iii) **Flash Distillation** : Here the heated saline water is passed through a series of chambers maintained at progressively declining pressures. In each section vapour is released and collected and then condensed.
- (iv) **Reverse Osmosis** : In this process suitable osmotic membranes are used which reject salt and allow water to pass through it when the sea water is put under high pressure.

However, there are some problems regarding the desalination processes. It is very costly and needs huge amount of energy. The desalination plants release significant amount of heat and pollutant. There would be problem of the disposal of vast amount of salt.

In India Central Salt and Marine Chemical Research Institute (CSMCRI) at Bhavnagar has done much in this sector. BHEL is manufacturing desalination plants of different sizes.

## Mineral Resources

Oceans are the storehouse of valuable minerals in the world. Mineral resources available in ocean are of different kinds like energy resources (oil, gas, coal), metallic minerals (manganese, iron, tin etc), chemicals (salt of sodium and chlorine and bromine, etc), manganese nodules and polymetallic nodules and others (coral, limestone, etc).

**Chemicals** : About 64 out of total 92 naturally occurring chemicals are dissolved in seawater, although only a few of them are commercially viable for extraction. Sodium and chlorine are abundant about 85% of the total sea dissolved salts. Magnesium and Bromine are other chemical elements.

**Metals/Minerals** : They include gold, silver, zinc, uranium, thorium etc. It is claimed that minerals can be hauled from the sea at 50-70 % of the cost of launching as the sea ores are often highly concentrated. However, not all of them are available and with the present status of technology they are costly to extract.

On the basis of areas of availability the mineral resources can be again divided into the following ways:

**On continental shelf and slopes** : This zone is rich in zircon, monazite, rutile, magnetite, gold, diamond, platinum, phosphorus, sulphur, Mud and sands found on the continental shelf rich in copper, zinc, lead, calcium. Sand is the source of calcium carbonate. Phosphorite is found in form of nodules containing about 30% phosphorus. On the western coast of India specially Kerala coast the sand of the sea coast possess about 90% of the world's monazite reserve. Which is the nuclear energy resource for the future. Along magnetite, zircon and Rutile one also found the west coast of India and is viable for extraction.

**Sub-surface deposits** : The most important sub-surface deposits are mineral oil and gas and coal. At present about 90% of the minerals

value is taken from the sea. The main off-shore oil-fields of the world are gulf of Mexico, Persian Gulf, North sea, North coast of Australia, southern coast of California, coast of Arctic sea, off the west coast of India. Many areas are still unexplored e.g. east Asia, South Asia, South America, Antarctica, East and North West Africa. New discovery has been made near the Philippines and mouth of Amazon. The mineral oil deposits are mostly found in the continental shelves. There are many structures, which work as trap for petroleum and natural gas such as salt dome. Thick sediment deposit and relatively high concentration of organic matter suggest to the occurrence of petroleum. Submerged coal deposits are found in Japan, U.K and South Africa.

**Deep sea deposits :** There are two main types of mineral deposits found on the deep sea bed which are economically viable. They are manganese nodules and metalliferous sediments or polymetallic sulphides.

**Manganese Nodules :** These nodules are most abundant in the deepest part of the ocean, very often in trenches. They are hydrogenous pelagic deposits and found in large concentration in Red clay. They mainly contain manganese, iron, nickel, copper, cobalt, lead and zinc. They are mainly spherical in shape from one to twenty cm in diameter. About 25% of the sea floor is expected to be covered by these deposits. In Indian ocean over 10 million sq. km. Area, east of central Indian ridge has such potential. They are less expensive source of these metals composed of bulk of land resources. Again they will be less polluting than mining on land. They are also good absorber of sulphur dioxide so will further reduce pollution. But the main obstacle in their exploration is that they need proper mining technology and huge energy.

**Polymetallic sulphides :** They are less well known than manganese nodules because their potential economic importance has only recently been recognized. They are rich in sulphur, iron, copper and smaller amount of zinc, tin, molybdenum, lead and silver. India has located such nodules in central Indian ocean and initiated the

## To tap ocean thermal energy

The Department of Ocean Development is taking up a pilot project under the national Jai Vigyan Mission to tap ocean thermal energy. The process of harnessing this energy is called OTEC (Ocean Thermal Energy Conversion). Essentially, this process uses the temperature difference between the surface of the ocean and at depths of about 1000 metres to operate a heat engine, which produces electric power. In tropical regions such as India, the temperature difference is about 20 degrees centigrade between the surface of the ocean and at the depths of about 1000 metres and due to various physical processes this difference is almost constant throughout the year. The essential components of the OTEC plant are an evaporator, turbine generator, condenser and a pump for circulating the working fluid. Other components include pumps and pipes for the supply of warm water from the surface of the ocean to the evaporator and cold water from a depth of 1,000 metres to the condenser. The National Institute of Ocean Technology (NIOT) is currently building a 1 MW floating demonstration OTEC plant off the coast of Tuticorin. The plant is expected to be operational by June 2000. Apart from the power derived from OTEC plants, there are other benefits from such plants such as desalinated water and mariculture.

exploration of polymetallic sulphides. The first discovery was made in 1968 off the coast of the Pacific. Since then, many other discoveries have been made in the Pacific, Atlantic and Indian Oceans. The first OTEC plant was built in 1979 in the Pacific. It was a 100 kW plant. The first Indian OTEC plant is being built by NIOT. It is a 1 MW plant. The plant is expected to be operational by June 2000. Apart from the power derived from OTEC plants, there are other benefits from such plants such as desalinated water and mariculture.

nodules have been carried out at National Metallurgical lab, Hindustan Copper Ltd., Regional Research lab-Bhubaneswar and Hindustan Zinc Ltd. Steps to up grade it to a pilot project has also been taken.

## Energy resources

Various renewable sources of energy have their potential in manne water. They as follows -

**Deuterium** : It is an isotope of hydrogen and is the most important raw material for the fusion process. The ocean contains 25 million tones of deuterium in its water. It is possible to generate energy from fusion of deuterium and tritium, the sea water would provide inexhaustible source of deuterium.

**Ocean Thermal Energy Conversion (OTEC)** : It is also called solar sea power plants (SSPP). OTEC relies on the natural temperature difference between the warm surface water and the cold deep sea water. The difference of 20°C is enough to produce electricity. There are many advantages of OTEC. First, it is free from pollution. Second it is an infinite source of energy. Third, energy supply is unhindered. However the proper technology is yet to be developed and the development cost is high. India has the total potential of 50,000 MW of ocean thermal energy, on southern coast. India has made a technology agreement with a US-firm to set up a plant in Tamil Nadu.

**Salinity Gradient/Osmotic Pressure** : Energy can be produced by exploiting the difference in salt content between two bodies of water e.g. where the fresh water of river and stream flows into estuaries. The rate of energy extraction is quite large. However problem of constructing such a membrane that is sufficiently large, rugged and efficient to handle the large volume of water remains.

**Tidal Energy** : The rise and fall of tides can be used to generate electricity. The favorable conditions are found in coastal areas with a large tidal range or in narrow channels with swift tidal current. It requires building of dam across bay or estuary so that sea water can be held in by high tide

"La-Rance" in France is the largest tidal energy plant in the world. In India Central Electricity Authority has overall responsibility for harnessing the tidal energy. The main potential areas in India have been identified in Gulf of Kutch, Combay, Sunderban, etc. Techno-economic feasibility study, conducted by Central Electricity Authority has shown the possibility of establishing a plant in Combay region with the cost of Rs 900 cr.

**Current Energy** : The massive oceanic surface currents of the world are untapped resources of energy. The potential areas lie mostly on the western part of the oceans. Gulf stream, kuroshio current have such the huge potential.

**Wave Energy** : A tremendous amount of energy exists in waves which are available all everywhere. Department of Non-conventional energy has recognized Ocean Energy cell in Madras as the nodal organisation for the development of basic research in harnessing wave energy. Department of Ocean Development has taken all responsibility for tapping such energy. It has estimated the total potential of wave energy in India about 60,000 MW. Tropical coast line in India specially south-west coast is more suitable for it. Ocean energy cell has established a pilot project plant at Vizhinjam in Kerala with the capacity of 120 KW during the monsoon season and about 30 KW during non-monsoon season. Ocean Energy cell is developing five other similar plants at Thangassery in Kerala.

**Biomass Energy Conversion** : Energy is also available by conversion of photosynthetic introduced organic matter or biomass into fuel. About 10<sup>10</sup> or more tones of carbon is fixed as organic material in ocean. Some plants are very efficient like kelp. Since some marine plants grow extremely fast it seems possible that marine biomass can be grown for energy conversion. However this source of energy is untapped till today.

## Ocean development in India

India has the 7516 Km. long coastline including the islands and about 2 million sq.km Exclusive Economic Zone. Since it has been realized that ocean has the vast potential

diess economic resources, various steps have been taken to develop and exploit its resources. First of all multidimensional ocean research ship "Jyeshthanti" was employed in this field in 1975. After that in 1979 Ocean Science and Technology Authority was set up in order to probe India's potential in the field of ocean research and development. However the landmark step was taken in 1981 when the Department of Ocean Development was set up. Two research vessels-Sagaranya from Germany and Sagar Sampada from Denmark-were engaged in the field of ocean research and development in the year 1983 and 1984 respectively.

The main objectives of the Ocean Development in India are:

- (i) Exploration and Assessment of marine living and non-living resources. Sagar Kanya and Sagar Sampada have done a lot in this area.
- (ii) Deep sea-bed exploration specially of polymetallic nodules. The commercial exploitation of 6 elements-sodium, calcium, chlorine, bromine, magnesium and sulfur is possible from the sea-bed. The prominent institutions engaged in the exploration of deep sea bed are National Institute of Oceanography-Goa, Central Mechanical Engineering Institute-Durgapur, National Metallurgical Laboratory-Jamshedpur, RRL-Bhubaneswar, HZL-Vadypur.
- (iii) Antarctica Expedition is the another aspect of ocean development which was started in 1981. Antarctic study center Goa is the nodal agency to regulate the different expedition. Indian scientists have already established two permanent stations-Matrai and Dakshin Gangotri in Antarctica.
- (iv) Development of coastal zone and islands. It is an integrated approach which covers the overall development of the coastal area. Five centers of marine satellite information services have been set up to gather the information. For pollution control Coastal Ocean Monitoring and Prediction system has been established. Some other steps taken for the development of the coast are the Wave Energy Development

program, sea level Monitoring and modeling, International Geosphere-Biosphere Program.

- (v) Oceanic-Meteorological survey is the prime goal of ocean development, which are of significant use in weather forecasting.
- (vi) Useful role in marine science and technology in the international arena is also an important objective as declared in the "Ocean Policy Statement-1982".

In India, the department of Ocean development carries out a periodic monitoring of the marine habitat. Started in 1991, the coastal ocean monitoring and prediction system (COMAPS) collects information on 25 parameters from 77 locations in the country, with the assistance of 11 Research and Development Organizations. In its annual report for 1997-98 DOD has stated that except off Mumbai, the coastal waters of India beyond two kilometers along the coastline, are clean and conform the quality of clean water. In 1982, the United Nations convention on the law of the sea (UNCLOS) created Exclusive Economic zones for the nations of the world stretching 200 nautical miles out from the coast. It also determined that the territorial water of the nations extended to only 12 nautical miles into the sea.

The first specialized survey "Dashak" built for the Indian navy at Goa shipyard Ltd., was launched in April 1998. The primary role of the ship would be coastal and oceanic hydrographic survey of ports and harbors.

The UNESCO had declared 1998 as the International year of the Ocean and chalked out a host of ambitious plans and programmes. The International Oceanographic Commission (IOC), an independent body in the UNESCO family was the nodal agency for the coordination of world-wide activities planned for the International year of the Ocean. The main aims of the International year of Ocean were to raise awareness of the oceans and coastal areas as economical assets, to obtain commitments from governments to take actions provide adequate resources and give to oceans the priority which they deserve. As part of the International year of the ocean, DOD proposed to display its research "Sagar Kanya" for a study

of the characteristics of the aerosol over the oceanic regions and their optical effects. The Indian satellite Oceansat is totally dedicated to ocean related services. This satellite is capable to increase the reliable information relation to potential fish zones and help to implement the modes developed by space Application Center forecasting of wind waves and other such aspects. It can cater the needs of fisheries, port, meteorology and oceanographic research.

### UNCLOS

#### (United Nations convention on the law of the sea)

The UNCLOS was born on 10 December 1982, at Montego Bay, Jamaica where it was opened for signature after 15 years of negotiation involving 150 countries. The convention was to come into force one year after 60 countries ratified it. This was reached when Guyana ratified the convention in Nov. 1993. It came into force on 16 Nov. 1994.

#### Nature and scope of UNCLOS

This convention is a kind of constitution for ocean's governance. It has treated the ocean as an integral whole and has provisions covering all ocean space and all known uses of the ocean. It assigns rights and duties to states and international communities as a whole.

It covers virtually all aspects of ocean space:

- 1 Breadth of the territorial sea, EEZ, Contiguous zone and continental shelf
- 2 Freedom of navigation and over flight.
- 3 Laying of cables and pipelines
- 4 Right of transit
- 5 Right of states to conduct marine scientific research.
- 6 Fishing rights
- 7 Creations of marine parks for protecting migratory fish marine mammals and so on
- 8 Duties of states to protect marine environment

According to UNCLOS the nation oceanic zones have been divided into three areas as follows

- The territorial sea: Up to 12 nautical miles from the coastline of the each coastal States

The states have the complete sovereignty over its territorial sea.

- **Contiguous zone:** Extends from 12 to 24 nautical miles from coastline. The coastal states can exercise control to prevent infringement of its fiscal, immigration, sanitation and customs laws.
- **Exclusive Economic zone:** Extends up to 200 nautical miles from the coastline. The coastal states have sovereign rights over natural resources, both living and non-living and can establish artificial islands and installations, conduct marine scientific research protect marine environment and so on. Beyond the EEZ is an international zone where management has to be exercised within the constraints of the international regime established under UNCLOS. The convention has set up on the national Seabed Area defined as the seabed and ocean floor and the resources they contain beyond the limits of national jurisdictions.

#### Gains for third world countries

- (i) By introducing the concept of EEZ the developing countries are given full sovereignty to utilize the resources up to 200 nautical miles which earlier was 3 to 12 nautical miles. If these countries face technological handicaps they can now control the exploitation of resources within this zone by any other country.
- (ii) UNCLOS offers security to archipelagos like Indonesia consisting of more than 1000 islands as it lays down the rules to demarcate territorial extent by drawing the boundaries from the outer limit of the outer island. Thus it provides them right over the resources found within that limit as well as right to passage.
- (iii) UNCLOS has inverted the new concept of the ocean is the common heritage of mankind. Now the region beyond EEZ is for everyone and not only for a few developed countries.

**India and UNCLOS :** India took a leadership part up to UNCLOS coming into force and finally ratified on 9th June 1995. Indian government has no reservation to ratify the convention and the delay was only because of snag

inter-ministerial co-operation.

India has an EEZ of 1,50,000 sq. nautical miles and it also possesses the technological know-how to exploit the vast natural resources of EEZ. Ratification of convention has made India a major gainer because the opportunities for it, now ranges from gaining regional leadership to increased exploitation of sea bed resources. It also provides India the scope for further technological advancement in sphere of ocean research by taking of joint ventures with friendly developed countries like Japan, Germany, U.S.A, etc.

### Antarctic research and India

India entered in the field of Antarctic research with its first expedition "Operation Gangotri" in December 1981. The third expedition constructed the permanent scientific research station "Dakshin Gangotri" in 1983-84, the second research station "Maitri" was set up in 1988-89. The various scientific programs of Antarctic Research includes studies in the field of meteorology, Radio-wave-propagation, geology, Geophysics, Oceanography, Marine biology, Microbiology, upper atmosphere chemistry, Glaciology, etc. India was admitted as a consultative member of Antarctic treaty in 1959. In September 1983 again India become member of the scientific committee on Antarctic Research in October 1984. India acceded to the convention on the conservation on Antarctic Marine Living Resources from 17 July 1985 and becomes full time member of the commission from September 1986.

Antarctica is the seventh continent of the world. It covers about 14 million sq. area with about 5,12,000sq. Km ice free area. Up to seventeenth decade of 20th century this was always considered as an abundant area for mankind but after the discovery of ozone hole in Antarctica this abundant region was visualized with great importance and at the same time other use full areas were discovered. Antarctica is rich in biological resources. Seals, more than 40 species of birds, fungi, algae, grasses, penguins are found here. Krill of Antarctica is one of the most famous and abundant resource of the world with the estimated stock of

1000 million metric tones of which at least 40-50 million metric tones could be harvested annually without endangering the stock. Antarctica ice cap contain 70% of world's fresh water store and more than 90% of ice.

The ice-free region of Antarctica has visualized the long scale mineral deposits. And this region is probably the world's biggest coal field.

The Indian Antarctic Research program have been designed to take advantage of the unique site and environment of Antarctica towards understanding the key global processes that govern our future well being. The scientific programmers are essentially part of it and rooted in following long-term programmes :-

- (i) Ice-Ocean-atmosphere system in Antarctica and global environment.
- (ii) Antarctic lithosphere and Gondwanaland reconstruction framework for delineating plate tectonic processes and assessment of mineral resources and hydrocarbons
- (iii) Antarctic ecosystem and environmental physiology.
- (iv) Solar terrestrial processes.
- (v) Innovative technologies for support systems
- (vi) Environmental impact assessment
- (vii) Generation and structuring of data bases-geological topographic, thematic mapping and ecosystem changes environmental parameter health care, etc.

The purpose of the Indian Antarctic research is to identify and initiate studies and programmes, which are of significance in scientific and economic terms and to establish infrastructure facility and expertise which would enable India to sustain and expand its activities. Furthermore it would add to our knowledge of the various features related to the Indian Ocean and also to the weather related to monsoon. Antarctica is also crucial to global weather phenomena such as air circulation pattern the cold phases and the sea currents.

More than twenty research institutions, universities and government departments have contributed to the success of Antarctic Research Programme. Army Navy and Air forces have provided invaluable logistic support for these



activities. DOD has established an Antarctic study center with appropriate logistic base facilities at Goa.

### Geo-strategic importance of Indian ocean and interests

Indian Ocean is the third largest ocean of the world. It covers 20.7 percent ocean area which is 7.5 cr. sq. km. It is the only ocean named after a country, indicating how India has been associated with this vast water body since the dawn of the human civilization. India lies at the apex of the triangular water body and has rightly been called the "crown" of the ocean. India covers about 1/8th coastline of the ocean. The ocean is bordered by 46 littoral and island sovereign states but India is not only the largest in area just after Australia but alone has more than 50 percent population of the region. Circled on the north by India and Arab countries, west by Africa, east by Malaysia, Indonesia etc. and south by Antarctica, it is an "embayed ocean" or landlocked sea.

It was not until 1500 AD that the real importance of this centrally located ocean was recognised. The Portuguese were the first to understand the military importance of this ocean and within 17 years of the arrival of Vasco-da-Gama, they were in the commanding position. They took command of Malabar region for re-export of East Indian spices and Goa became their capital. Besides Goa, Daman and Diu. Portuguese base were made at Madras, Hoogly, Chittagong and Ceylon. But the fall of the strait of Malacca to the Dutch in 1595 led to the collapse of the Portuguese defense system. By that time, British and French presence were also felt.

The Britishers established their first depot for goods at Surat on the west coast of India during the third decade of the 17th century. Others followed at Madras (1639), Bombay (1661) and Calcutta (1690) and ultimately East India Company was set up. By the time it was realized that the key to the control of Indian ocean lay in the domination over Indian subcontinent. Hence Dutch, French, Portuguese and Britishers all tried to establish bases in India but it was Britishers who

finally established their edge. Gradually the ocean became a British lake. The whole area was colonized and it became a policy of Britishers to protect the ocean from other colonial powers. The British military command over this vast area was fully motivated to make use of huge resources of this region. But after World War-II British Government started gradually to reduce its presence in the ocean zone due to declining interest. British Government decided to withdraw all the bases by 1971. The most important decision was the selling of Diego Garcia to U.K. by the Mauritius and then to U.S.A. on a contract by U.K. for communication purpose. But Diego-Garcia has now converted as the total military base in the Indian Ocean.

**Diego-Garcia Base and India :** Diego-Garcia is an island of Chagos group archipelago, 1600 km south of India and 1920 km north-east of Mauritius. Since 1973 it has been a full fledged naval base with all the sophisticated nuclear weapons. The U.S.A. has an edge over all other power blocks. The base provides the following geo-strategic advantages to USA:

- (i) Diego-Garcia base will help in having control over the strait of Malacca through which red flags may enter the ocean.
- (ii) It will be very near to Middle East oil and U.S.A. has tremendous interest in this oil economy. Protecting the sovereignty of Kuwait in 1991, U.S.A. has established the importance of this ocean.
- (iii) It will also help in exploiting the neighboring resources.
- (iv) It will also help in exploiting Antarctica resources from this base.
- (v) Several valuable mineral nodules have been found in the Indian Ocean and adjacent countries. The Ocean and the adjacent countries share 80.7% gold, 57% tin, 28% manganese, 25% diesel, 18% bauxite, 12% zinc and about 60% petroleum resources of the world. About 150,000 sq.km. area of the ocean is occupied by the huge reserves of polymetallic nodules. A reserve of polymetallic nodules is 50,000 billion and every year 1.5 billion tone is added.

Again fishing are also of economic importance.

**Indian Interest :** It is not wrong to say that Indian Ocean would be the real center of power and rivalry in the 20th century. India's strategic interests in the Indian Ocean can be summarized in the following ways:

(i) India is a most important littoral state and its concern over Indian Ocean is obvious.

(ii) Neither Russian presence nor American base can favour India's geo-strategic interests. That is why India has always denounced the presence of any naval submarine in this ocean.

The whole concept of power vacuum is contrary to the philosophy of non-alignment and against the national hopes and aspirations. The motivated interests have ignored the concepts of Nuclear-free Zone and Peace Zone. This is

a way out through which super power want remain present in the ocean by proxy.

(iv) The whole area from Cyprus to Taiwan found in the dormant stage at the present global political complications. Hence, India has handle this area strategically so that the developing countries can prosper without superpower interference. The formation of SAARC, ASEAN, Asian Association, African Fund and the South South Dialogue indicate how India is interested in protecting the interests of the littoral state.

The concept of "Indian Rim" for making Indian Ocean Community is the landmark step in the field of economic co-operation among the Indian Ocean littoral states. India, Australia, South Africa, Singapore, Oman, Kenya, Mauritius are members. ■■

# HEALTH AND HEREDITY

The term 'Genes' was coined by the Danish biologist, Wilhelm Johannsen. However, Gregor Johann Mendel was the first to show that hereditary factors operate in all the biological species. These factors (Genes) were responsible for not only for transmitting hereditary traits but also for influencing the entire process of life. For long, these genes remained an enigma but with the discovery of the structure of the DNA (Deoxyribonucleic Acid) by Watson and Crick in 1953, some of these mysteries were solved. The structure of the DNA was like a twisted ladder. If this ladder were to be straightened, we would see that the two sides of the ladder consisted of long chains of sugar and phosphate in a repeated sequence. This structure never varied. The two sides of the ladder were connected by rungs which were further divided into two halves, each linked to one side of the ladder. These half rungs can be formed either of Adenine (A), Cytosine (C), Thymine (T) or Guanine (G). These half rungs with the attached part of the ladder is known as nucleotide. These molecules

are formed in a fixed arrangement which forms the genetic code. The genes control the operation like multiplication and Synthesis of Proteins. Before the division of the cell, the DNA ladder splits from the middle. The separated nucleotides now pick up their partners from the free floating nucleotides forming another ladder. This replication is followed by differentiation whereby specialised cells form different parts of the body.

The genes are found in the thread like bodies called chromosomes which lie in the nucleus of the cell. They are always found in pairs. Man has 20 pairs and human beings have 23 pairs. The nucleus is filled with RNA (Ribonucleic Acid) and DNA. The genes give specific instructions for the manufacture of specific kinds of protein. In the synthesis of protein, DNA is assisted by RNA. The difference between RNA and DNA is that while the former is of single strand, the latter is of double strand. The RNA has uracil instead of Thymine of DNA. The RNA consists of messenger RNA, transfer RNA



**DNA fingerprinting :** This concept is based on the fact that a small section of DNA of an organism uniquely distinguishes that particular organism from all others. These distinguishing genetic material form sequence of DNA called mini-satellites. Which are repeated many times. These repetitions vary and by using techniques of chromatography and electrophoresis on samples of blood, tissue or semen, a two dimensional pattern of spots is produced. This technique was developed by doctor Alec Jeffreys.

This technique is now being used as evidences in cases of rape, paternity suits, in investigating family relationships in animal population, etc. This technique is being successfully carried out in the Cellular and Molecular Biology Centre Hyderabad. The verification of 'Dhami' the assassin of Rajiv Gandhi was accomplished by this very process.

**Genetic Engineering :** It is a technique in which manipulation of genes in the form of fusions, deletions, inversions and transportation takes place. Gene splicing and Recombinant DNA technology are also forms of genetic engineering. In the Recombinant DNA technology, DNA of one organism is grafted into DNA of another.

During the process of recombination, an *E. coli* bacterium is broken up by a detergent. The plasmid is submerged in a restriction enzyme which creates various cleavages in the plasmid. The restriction enzyme is again used to separate a DNA from a virus. This gene is inserted into the DNA of the bacteria. DNA Ligase now helps to join the two segments by acting like a glue. Now

the new hybrid plasmid is introduced into the bacterium, which now freely divides and multiplies.

By this process many engineered substances have been produced e.g. human insulin, INTERFERON (anti-virus and anti-cancer), Somatrem (growth hormone), vaccine for Hepatitis, plasminogen activator (blood clotting), etc.

## Biotechnology

Biotechnology can be described as the industrial use of micro-organisms and living plants and animals cells to produce substances or effects beneficial to people. It uses life sciences, chemical sciences and engineering sciences. Biotechnology includes genetic engineering, protoplast fusion, hybridoma technology, cell culture, tissue culture, germoplasm development, embryo transfer technology, enzyme and protein engineering, fermentation, bioconversion etc. Its applications encompass agriculture, horticulture, forestry, medicines, health, chemical industry, food industry, environment etc.

**Agriculture :** By using Biotechnology crops resistant to pests and drought, production of hybrid seeds, fuel and fodder crops, production of biofertilizers like *Azolla*, *Azotobacter*, *Rhizobium* etc., are produced. Biopesticides like *Bacillus Thuringiensis*, *chrysopa*, *Trichogramma* etc. have also been produced with the aid of biotechnology.

By using tissue culture, mass propagation of vegetable, fruits and flower varieties have been carried out. In the field of animal husbandry, by using the hybridoma and Embryo transfer technology, hybrid animals and vaccines have been produced. For sterilization of male animals and injection called 'Talsur' has been developed.

**Human Health :** By using the techniques of tissue culture, highly effective vaccines have been produced. So far polio vaccines, Hepatitis-B vaccines, immunologicals etc. have been produced. By using the recombinant DNA technique, insulin, growth hormones, interferons, blood clotting factors etc. have been produced. Genetic counselling have been established for genetic counselling and screening. Many diagnostic kits for detecting

communicable and non-communicable diseases are being manufactured. So far ELISA (AIDS), typhoid, malaria, blood group, pregnancy, leishmaniasis kits are being commercially marketed.

**Industry :** Biotechnology has been used to produce various industrial chemicals. These chemicals are produced through microbial processes using agricultural wastes. Alcohol is being produced from molasses. Similarly antibiotics, vitamins, steroids etc are being produced. Ethanol, formaldehyde, hydrogen etc. are also being produced.

**Environment :** Biotechnology is now being used for biodegradation of plastics, polymers and synthetic material using microbes. Oil spills are being cleaned using bacteria. Biosensors have been developed for environmental monitoring sewage treatment is another field where this technology is being used. The use of aerobic and anaerobic micro-organisms facilitate this process. *Pseudomonas* can degrade hydrocarbons like benzene, toluene, etc.

**Cloning :** In this technique clones are produced using the nuclear transfer technology. Every nucleus of a chromosome contains genes. In this process, the nucleus of a cell is taken out and transplanted in the nucleus free embryo. Electric currents are passed so that the division of cells takes place. The fully developed embryo is planted inside a surrogate mother. The word 'Clone' has been taken from Greek language which means 'twigs'. No wonder, the method quite resembles the similar practice which takes place in case of plants with the help of twigs. The clone is a replica of its mother unlike in a sexual reproduction where the offspring has both the traits of mother and father. The birth of 'Dolly' a clone of a sheep in 1997 in the Roselyst Institute, Scotland created a stir. Soon clones of monkeys, pigs, mouse were being made, Richard Seed even talked about creating a human clone. This has been debated the world over on moral and social grounds. However, the cloning of organs of human beings has been hailed albeit with circumspection, as it would allow replacement of damaged organs in a



man's body

**Terminator Gene :** This gene developed by American Company Delta and Pineland and USDA has the potential to switch off the reproducing capacity of a seed if it is inserted in it. It would help the patented seeds but it has received condemnation from third world countries as it would thwart their efforts to produce seeds from plants because they now would have to again buy the patented seeds. A similar gene has been developed for animals.

**Health :** The world health organisation (WHO) has defined health as "a state of complete

### Magnets to operate on brain tumours

In a significant medical breakthrough surgeons are using magnets to guide instruments through delicate parts of the body. The system uses a combination of supercomputing magnets and imaging software to guide instruments attached to a magnet through a body. During the operation the patient's head is surrounded by six superconducting magnets. By altering the strength of their magnetic fields, a magnet can be moved around inside the patient's head. The system will also be used for other operations. Experts opine that this is a fundamentally new way of doing minimally invasive surgery and should revolutionise brain surgery. Future possibilities for the technique will include implanting electrodes into the brains of patients with movement disorders.

physical, mental and social well being and not merely as the absence of disease or infirmity". Health is influenced not only by the internal environment or the body parts but also by the external environment. The 1978 Alma Ata declaration aimed at achieving health for all by 2000 A.D. However, despite constructive measures including both preventive and promotive, the aim has not been fully achieved.

**Indian Medical systems :** In the Indian medical system, Homeopathy, Ayurveda, Greek System, Yoga, etc play an important role. These systems have been inherited by our present generation from the ancient era. The Greek system arrived in India in the Tenth century but has since then become an integral part of our medicine system. Ayurveda is practiced all over India. These medical systems are mainly effective in the rural areas but they are gaining in prominence due to the harmful side effects of the Allopathic system of medicine.

## Major Diseases

**Malaria :** To combat this communicable disease the government started the National Malaria Eradication Programme (NMEP). It is a centrally

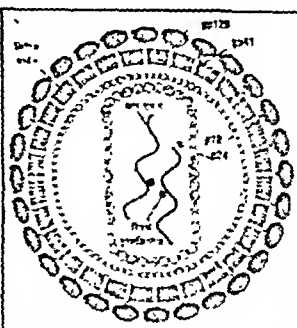
sponsored programme where the concerned states have to bear half the cost. The success of the programme can be gauged from the fact that 7.5 lakh victims of Malaria in 1958, though 90% of Malaria were completely eliminated by 1965, due to development of resistance by the parasite. A modified plan of operation was started in 1965. The measures for controlling the disease include early detection, treatment, reducing vector population through spraying, taking anti-larvae measures, identification of malaria prone areas and creating health awareness.

It should be noted that the protozoan disease malaria is caused by Plasmodium falciparum and Plasmodium vivax. It is spread by female anopheline mosquitoes like Anopheles stephensi and Anopheles stephensi.

An Australian scientist Donald Gillies recently discovered the gene that causes sickle cell anemia. This gene is concerned with the production of the P.F.E.M.P protein by Plasmodium falciparum. This protein makes the red blood cells stick to the vessel walls through a process called 'Cytoadhesion'. It is hoped that the discovery of the gene will help develop curative measures to combat malaria.

## New development for AIDS

A weakened form of HIV virus to cure infected patients. This theory put forward by Dr. Verma and his colleagues at the Salk Institute, California, may bring about a fresh angle to the ongoing fight against AIDS. Similar experiments are to be conducted at a children's hospital in Los Angeles. The experiment conducted by Donald Kohn and Oxford Biomed will extract stem cells from the bone marrow and in the next phase, the cells that make substances which are dangerous to the existence of these cells in the patient's bone marrow will be matured into blood cells that can fight subsequent generations of the HIV virus.



which would give the patients lifelong protection from the HIV infection. Verma's team has already shown that stem cells can survive and generate new blood cells when implanted in a mouse. A fluorescent green protein of a jelly fish is attributed to the gene that Verma introduced into stem cells. This helped Verma to see what proportion of the blood cells were influenced by the newly injected HIV genes. It was found that 10 to 15% of the blood cells had green blobs which was a significant indication that the HIV genes were active.

**Filariasis:** This disease is caused by *Nematodes* especially *Bucherina Vancrofti* and *Brugia Malai*. It is transmitted by mosquitoes. In this disease the lymphatic channels are blocked and it results in a disease called elephantiasis. The whole of southern India particularly Tamilnadu is affected by this disease. A major treatment method for this disease is the use of a mixture of salt and diethyl carbamazine citrate. To control this disease 'The National Filaria control programme' was launched in 1955.

**Tuberculosis :** This disease is caused by a bacteria streptococcus or staphylo coccus. TB infection is caused by absorption through either lungs or intestines. It can be cured by using drugs like Rifampicin, Isoniazid, Ethambutol or Pyrazinamide. If due to negligence in taking the

full course of the drugs, TB reoccurs then second line drugs like Ofloxacin or Cyclosporine are given to the patients. The BCG vaccine has not had the desired results in checking this disease. The National Tuberculosis control programme was started in 1952 but it could achieve little. Even today about 12 lakhs people become victims of this disease out of which 5 lakh people die annually.

**Kala-Azar :** This disease is widespread in West Bengal and Bihar. This disease is also known as Leishmaniasis and is caused by amoeba and spread by sand flies. Heavy infection results in the enlargement of the spleen and liver while minor infection merely affects the skin. The disease resurfaced in North Bihar in 1999. The Elisa R.K. 39 kit is successfully being used to diagnose this disease.

## Eliminating possible health risks from PVC and plastics

Recently, some researchers at Thiruvananthapuram's Shree Chithir Thirunal Institute for Medical Sciences and Technology have evolved a simple method to make plastics and PVCs (Polyvinyl chloride) free from possible health risks. This breakthrough may prevent the loud opposition of international consumer and environmental groups to the use of the PVC. The leakage of PVC additives from plastic bags has been one of the most disturbing problems of the chemical industry largely because of the toxic impacts of PVC. In the newly invented method, a well known chemical reaction is used to prevent the potentially toxic PVC additives from leaking out of plastic bags. A plasticiser called diethylhexyl phthalate (DEHP) is one of the PVC additives, which gives plastic its flexibility, often gets leaked out of the PVC bags and are infused into the stored material kept in those bags, resulting in the cause of several diseases. Such migrations of DEHP from PVC bags into the stored material have been known to cause liver cancer among rats (which can be extended to human beings too) and myriad ailments among human beings.

A. Jayakrishnan and S. Lakshmi, a team of dedicated scientists from the above mentioned institute have discovered a method to keep PVC and

plastics safe by preventing migration of DEHP to the stored material. As DEHP is not chemically bound to the plastic, it floats freely. The researchers have confined the DEHP inside PVC by soaking plastic in water with sodium sulphide and another appropriate catalyst. The process produced an impenetrable surface layers that prevented DEHP from escaping. Later, in order to test the success of the experiment, the scientists soaked the modified PVC in petroleum for six months. The treated PVC, as a result of the impenetrable surface layer doesn't lose its DEHP. The PVCs on which the experiment is not being carried out loses all its DEHP if they are undergone such a test.

Though there are some minor problems regarding loss of colour etc but there is no denying the fact that the method conceived by the scientists is extremely successful in improving the safety conditions that was previously jeopardised while using plastic goods and PVC bags. Now medical devices and plastic toys would also be safer to use. The technique can also be used for other plasticisers like DMP etc thereby preventing their leaking out from the plastic and getting infused into the stored material in many plastic containers.

**Cancer :** Cancer is a dreaded world in medical field. In India at present, there are 2 million cases of cancer and every year 3 lakh people die. The national cancer control programme launched in 1975 has failed to deliver the goods. The more dangerous forms of cancer include those of the oral cavity, cervix and breast. About 36 percent of the cancer is related to tobacco use. The disease is cured through surgery, radiotherapy and chemotherapy. A sophisticated machine, the LINAC has been installed in PGI, Chandigarh but the exorbitant cost of treatment has made it incompetent to deal with the growing number of cases among the poorer sections of the society.

**AIDS :** The Acquired immuno deficiency syndrome or AIDS is caused by the Human immuno deficiency Virus (HIV). It is believed it originated in Africa. The virus attacks the cells responsible for maintaining our immuno response called lymphocyte. HIV is transmitted through blood and blood products, seminal and vaginal fluids. Unprotected sex, infected blood transfusion, contaminated needles, infected mother to child, artificial insemination etc. result in spread of this dreaded disease. It is, however, not spread by activities like kissing, coughing, sneezing, mosquito bites, food, water etc. If a person has AIDS, he faces rapid weight loss, chronic diarrhoea, prolonged fever, persistent cough, swollen lymph

## Medical Discoveries and their discoverers

Discovery	Discoverer	Discovery	Discoverer
Treatment through Ultra Violet rays	Finsen, Arthur Berg, Jones Watson	Embryology	Karl Ernest Van Baer
Iron lungs	Phillip Draker	Rabies Vaccine	Louis Pasteur.
Insulin	Banting	Chloroform	James Simpson
Aspirin	Dresser	Morphine	Friedrich Sertuner
Antiseptic Surgery	Lister	Bacteriology	Ferdinand Cohn
Synthetic Chloroquine	Raby	Diphtheria germs	Kiebs and Löffler
Treatment of Back Fever	U N Brahmachari	Anti toxins	Behring and Kitasato
Vaccination	Edward Jenner	Psycho Analysis	Sigmund Freud
Genetic code	Hargovind Khurana	Serology	Paul Ehrlich
Circulation of blood	William Harvey	Vitamins	F.G.Hopkins
Biochemistry	Jan Baptist Van Helmont	Vitamin A and B	Mc Collum
Bacteria	Leeuwenhoek	Vitamin C	Friedrich Hoist
Neurology	Franz Joseph Gall	Vitamin D	Mc Collum
Physiology	Albrecht Von Haller	Adrenaline	Schaff and Oliver
Tetramycin	Finley	Electro-Cardiograph	Einthoven
Tuberculosis Treatment	Robert Koch	Synthetic Antigens	Land Steiner
Typhoid	Roe Birt	Cortisone	Edward Calvin & Kendall
Diabetes	F Banting	RH-factor	Karl Land Steiner
DDT	Paul Muller	Streptomycin	Selman Waksman
Penicillin	Alexander Fleming & Florey	LSO	Hoffman
Polio Vaccine	Jonas Salk	Chloromycetin	Burkholder
Polio Vaccine (Oral)	Albert Sabin	Cryo surgery	Henry Swan
Yellow fever Treatment	Reed	Open Heart Surgery	Walton Lillehei
Plague and Dysentery	Kitazaki	Contraceptive pills	Pincus
B.C.G.	Yunn Ka'mate	Heart Transplant Surgery	Christian Bernard
Berry Berry Treatment	Isaacman	Test tube baby	Stephens and Edwards
Malaria Treatment	Ronald Rose	Syphilis	Paul Ehrlich
Histology	Marie Bichat	Sulpha drugs	Dogmachi
Stethoscope	Rene Laennec	Hydrophobia	Louis Pasteur
		Homeopathy	Hannann

nodes, persistent night sweats, herpes zoster infection etc. The Enzyme linked immunosorbent Assay or ELISA Kit is used to detect cases of AIDS. Other diagnostic kits include particle agglutination test (PAT), Immuno Fluorescent Assay (IFA), radio immuno precipitation Assay (RIPA), HIVA test etc. The AZT or Azidothymidine is useful for treating AIDS. Other curative drugs include Zidovudine, Zalcitabine, Saquinavir etc.

In India, Maharashtra has the highest number of cases of AIDS followed by Tamil Nadu and Manipur. To counter AIDS, the government started the National AIDS Control Programme in 1989.

**Blindness :** India tops the world in the number of blind people. The major cause of blindness is cataract which covers four-fifth of the total cases of blindness. Other cause of blindness are glaucoma, small pox, vitamin A deficiency, trachoma and injuries. What is intriguing is the fact that majority of these cases is curable. Considering this fact, the government started the National Programme for control of blindness in 1976.

**Iodine deficiency disorders :** Iodine is used by the thyroid gland to produce thyroxine which affects our growth and development. Apart from goitre, Cretinism, neonatal, hypothyroidism, spontaneous abortions etc. also occur due to lack of

iodine. To control goitre, the national goitre control programme was launched in 1962.

**Fluorosis :** It is caused by fluorine which is present in water. If the intake of fluorine exceeds 8 ppm, it can cause skeletal fluorosis. The Rajiv Gandhi National drinking water mission has identified 15 states as endemic of fluorosis. As there is no cure of fluorosis, preventive steps like mixing lime, alum or bleaching powder in water have to be undertaken.

**Leprosy :** It is caused by the bacteria *Mycobacterium Leprae*. Leprosy destroys the peripheral nerves, causes disfiguring skin patches and lumps. Bihar, U.P., W. Bengal, M.P and Orissa are the most vulnerable states. The National Leprosy Control programme was launched in 1955. The multidrug treatment including Rifampicin, Clofazimine and Dapsone have been found to be highly effective to combat the disease.

**Polio :** It is a communicable disease which mainly affects children below five years of age. The Polio virus affects mouth, liver, intestines and spinal chord. Contaminated food and water are the major carriers of this disease and may cause life long paralysis. So far no drug has been made that can kill the virus, hence preventive measures gain priority. The oral Polio vaccine developed by Dr. Albert Sabin and the injectable polio vaccine discovered by Jonas Salk are the main methods

### Wonder drug prevent smoking

Mere will power is not sufficient to quit smoking as research has shown that the effect of addictive substances like nicotine which can alter brain chemistry continues long after the smoker has stopped smoking. However, there is good news on this front. Smokers can use GVG, the wonder drug to help them quit their addiction. This epilepsy drug has already shown positive results in curing cocaine addicts. Research has shown that gamma vinyl-GABA has successfully blocked the effects of nicotine on rats and humans. It has also shown that a higher dose of GVG prevents non addicted ones from being addicted to nicotine. Although clinical tests on humans have not started, the drug would obviously reduce the number of smokers considerably.

GVG aims to impede the biochemical and behavioural effects of nicotine in almost identical way as it controls epileptic seizure. It functions by altering the way of communication of brain cells to one another. Nicotine also raises the dopamine levels of the brain, (dopamine is a neurotransmitter associated with feeling of pleasure) which sends a pleasure wave that the smoker gets addicted to. GVG helps maintain dopamine at the near normal levels even if a person is exposed to the addictive drug. The nicotine. Thus smokers are not induced to try nicotine any more and thereby can easily quit the habit.



## Supercharged rice

Researchers have found a way to increase the content of iron in rice. Iron deficiency is a serious problem worldwide, particularly for people whose diet consists mostly of vegetables and grains. Researchers re-engineered the rice, transplanting a soybean gene responsible for producing ferritin, a complex compound that stores thousands of iron atoms in a central cavity. The new rice contains up to three times the iron of ordinary rice, and meal sized portion may provide 30 to 50 per cent of the adult daily requirement.

to check the disease. The government has started the pulse polio scheme all over the country

**Hepatitis :** Hepatitis is caused by virus. These virus are of 6 types named A,B,C,D,E and G respectively. Out of these the A and E types are found in water. All the others are transmitted through blood. In India the B and C types of virus are more prominent. The problem with this disease is that they are not easily identifiable. A new vaccine made by the Hyderabad based Shanta Biotechniques called Shanvac-B is being used to vaccinate children

**Dengue Fever :** It is a viral fever caused by the mosquito Aedes Aegypti which bites in the morning hours. There are three stages of this disease. In the first stage the patient has high fever



for four to five days. He has pain in the eyes head and joints. It is normally cured in a few days. The second stage is the dengue haemorrhagic fever. It results in internal bleeding. If the patient's blood is not transfused, he may die. The third stage of this disease is called the dengue shock syndrome. In this stage the patient's blood pressure decreases and he suffers shocks.

**Bird flu :** This disease resembles influenza and is caused by a virus H5N1. The virus mainly is composed of two antigens Hemagglutinin and Neuraminidase. The virus was first detected in May 1997. The virus enters man through chicken. In December, 1987, 10 lakh chicken were killed as they were suffering from bird flu.

**Mad Cow disease :** It is also called bovine spongiform encephalopathy. It mainly affects the bovine population and shows abnormal symptoms. The brain becomes spongy for identification. The BSE agent steley Prusiner was awarded the nobel prize in 1997.

**Nuclear Medicine :** In the peaceful use of nuclear science, nuclear medicine has a prominent place. The Alpha, beta and gamma radiations from radioactive nuclear have revealed the curative power. Today Radio Isotopes have become an invaluable tool to solve many curative diseases.

The use of Radio Isotopes for curative diseases goes back to 1938, its full development came in the 70's. Nuclear medicine uses the 'tracer principle' which was evolved by Geiger for which he got the noble prize in 1944. Today the positron emission Tomography has revolutionized the field of nuclear medicine. The main Radio Isotopes used in nuclear medicine include Cobalt-60, Iridium-192, Gold-198, Oxygen-15, Nitrogen-13, Carbon-11, Fluorine-18, Rubidium-82, Copper-62, Gallium-67 and Technetium-99m. They are used not only for curative purposes but also for scanning the body. Cobalt-60, Iridium-192 and Gold-198 have been used to cure cancer. Iodine-131 is being used to cure thyroid disorders. ■■

# ECOLOGY AND ENVIRONMENT

The two components of nature viz, organisms and their environment are not only complex and dynamic but also interdependent, mutually reactive and interrelated. *Ecology* deals with the various principles which govern such relationship between organisms and their environment.

Haeckel first used the term *ecology*. He regarded the ecology of an organism as the knowledge of the sum of the relations of organisms to the surrounding outer world, to organic and inorganic conditions of existence. After the introduction of the term *ecosystem* in literature by Tansley in 1935, started the era of ecosystem approach to ecology.

The various communities of living organisms (plants and animals) interact among themselves as well as with their physical environment like soil, air and water. The living organisms interact with one another through their food chains in which one organism consumes another organism. The living organisms like plants interact with soil to act essential nutrients like nitrogen, phosphorus, etc with air to get carbon dioxide and also with water bodies, for carrying out the process of photosynthesis. Thus, the various communities of living organisms like plants and animals along with soil, air and water of that region form a self-sustaining or functional ambit of the living world. This functional unit or system made up of living and non living components which is capable of independent existence is called an ecosystem. Structure of an Ecosystem: All the ecosystems are made up of two main components: Abiotic components and Biotic component. Abiotic components of an ecosystem include the physical environment like soil, water and air along with the inorganic substances like carbon dioxide, nitrogen, oxygen, water and elements presents in them. The physical factors or climatic factors like light, temperature, pressure and humidity are considered abiotic components of the ecosystem.

The biotic component of an ecosystem is a community of organisms (like plants, animals, microbes) which is made up of many different interdependent populations. The biotic community of an ecosystem includes three types of organisms:

(i) Producer organisms (or Autotrophs) which synthesise their own food. All the green plants are producers. (ii) Consumers organisms (or Heterotrophs), which are dependent on others for food. All the animals are consumers. (iii) Decomposer organisms (or Saprophytes), which consume the dead remains of other organisms. Certain bacteria fungi and blue green algae are decomposers. Thus, producers trap the solar energy and then provide the basic food or energy supply for all other life in the ecosystem. The consumers (animals) derive their energy needs, directly or indirectly, from producers (plants). When the producers (plants) and consumers (animals) die, then the decomposer organisms act on their dead bodies to return the various elements back to the nutrient pool (soil, water, air)

**Biome** : The natural ecological grouping of plants and animals on the basis of climates are called biomes. In other words, all the ecosystems taken together in a given geographical area having the same type of climate is called a biome. The examples of biomes are desert, grasslands, tropical forests, temperate forests

**Freshwater and marine biome** : A biome is a very large ecosystem having the same type of climate, same type of plants and animals throughout. So, biomes are also termed as major ecosystems of the world

**Biosphere** : A zone consisting of land, water and air, where life exists is called a biosphere. Biosphere includes all the living organisms of earth and all the life supporting regions of the earth. Thus the biosphere consists of four parts  
Lithosphere (Land surface or soil)

Hydrosphere (Water bodies)

Atmosphere (Air)

Living organisms (like animals and plants)

**Food chain and Food Web :** All organisms including man need food which provides energy for growth, maintenance and reproduction. A part of the energy provided by food is used for biological processes and the rest is dissipated to the environment as heat energy by the process of respiration. Undigested food is excreted and enters the detritus path. The food (or energy) can be transformed from one organism to the other through food chains. The starting point of a food chain is producers (green plants). Now, plants can be eaten by a rat. The rat in turn, can be eaten up by a cat. And finally, the cat can be eaten by a dog. So, we find that there is a sequence (or order) in which one organism eats up the other organism to fill its belly. The sequence of living organisms in a community in which one organism consumes another organism to transfer food energy, is called a food chain. A food chain represents a single directional (or unidirectional) transfer of energy. Many of these food chains are inter-connected by organisms which occur in more than one food chain. The inter-connected food chains operating in an ecosystem which establish network of relationships between various species, is called a food web. In other words, the network of a large number of food chains existing

in an ecosystem is called a food web.

Each group of organism occupies a trophic or feeding level. All green plants and other producers in the ecosystem occupy the first trophic level. Herbivores which feed on plants occupy the second trophic level. Carnivores that eat herbivores are at the third trophic level. The trophic levels may be represented in the form of a pyramid, called ecological pyramid.

The percentage of energy transferred from one trophic level to another is called ecological efficiency. The efficiency of energy transfer from one trophic level to another varies from 5 percent to 20 percent depending on the types of organisms and environmental conditions. In the terrestrial ecosystem, only 10 percent of plant energy is transformed to herbivores, rest 90 percent escape in the form of heat. That means on an average, only 10 percent of energy is transferred from one trophic level to another.

For that matter, any other living organism must interact properly with the rest of the ecosystem, because he is an integral part of that ecosystem. Some of man's activities like hunting of various animals, disrupts the food chains in which these animals normally take part. The shortening of food chains due to man's activities leads to an imbalance in the functioning of an ecosystem and ultimately in the functioning of the whole biosphere. Modern agricultural uses a large number of toxic

### Decline in global emissions

According to new estimates by the Worldwatch Institute, for the first time since 1993, global emissions of carbon from the combustion of fossil fuels declined in 1998, falling 0.5% to 6.32 billion tonnes. The decline in emissions in the face of a world economy that expanded 2.5% in 1998 has disproved the notion that reducing emissions will damage the economy. During the last two years, the global economy has grown by 6.8%, while carbon emissions were remained at a steady level. According to the Worldwatch report, the delinking of carbon emissions from economic growth is most clearly seen in China, the world's second largest emitter of carbon emissions. Its economy grew by 7.2% in 1998 while emissions dropped 3.7%. One factor in the sharp decline in emissions from China is believed to be a recent \$14 billion cut in its total subsidies. The 1998 carbon emissions on million metric tonnes were 6,318 for the world, 803 for China and 276 for India. Since 1997, emissions came down 3.7% in China but increased 1.8% in India.

The overall decline in emissions is partly due to improved energy efficiency, greater awareness, and falling coal use. Also, much of the economic growth of the last two years has come in information technologies and services sectors that are not major energy users.

chemicals like pesticides, weedicides and rodenticides, to protect the crop plants from pests and diseases. Some of these poisonous chemicals mix up with soil and water and are absorbed by the plants from the soil along with water and other minerals. In this way, the poisonous chemical substances enter the food chain right from the producer level. When man and other animals eat these plants or their products, the poisonous chemical substances are transformed to their bodies. During the process of food transfer through trophic levels, these harmful chemicals get concentrated at each successive level. The increase in concentration of harmful chemical substances like pesticides in the body of living organisms at each trophic level of a food chain is called biological magnification. For example, In 1942, a lot of D.D.T. was put in the Lake Michigan in North America to kill the mosquitoes and eliminate malaria. After about 20 years, it was found that the number of pelican birds which lived around this lake was decreasing very rapidly. The scientists explained the abnormal decrease in the pelican population on the basis of bio-magnification of D.D.T. pesticide in the bodies of pelicans. Due to presence of D.D.T. the eggs laid down by them had a very thin outer shell. Due to this, even before the young ones of pelicans could hatch, the thin shell of the egg broke off, which resulted in the decrease in pelican population.

## Terminology of Ecology

**Species :** A uniform interbreeding population.

**Vegetation :** Vegetation is the sum total of plant population covering a region. Communities are discrete units of vegetation.

**Flora :** Flora is the species content of the region irrespective of the numerical strength of each species. Thus, vegetation is described whereas flora is listed.

**Population :** A population is a group of individual organisms of the same species in a given area.

**Community :** A community is a group of populations of different species in a given area. It includes all the populations in that area—all plants,

## Important National Parks and Sanctuaries of India

Andhra Pradesh	Kawal, Pucharam, Pakhal, Neelapathi
Arunchal Pradesh	Namidapha
Assam	Kaziranga, Manas
Bihar	Hazaribagh, Betla
Goa	Mollen
Gujarat	Gr. Velavadar, Wild ass, Nal Sarovar
Haryana	Sultanpur lake
HP	Sechu-nun-Nallah, Gobind Sagar
J&K	Dachigam
Karnataka	Bandipur, Nagarkote, Ranganthitoo
Kerala	Pennar, Wyanad, Neyyar
MP	Kanha, Shrivun, Bandharghat
Maharashtra	Tadoba, Pench, Nawegaon, Bor, Dhakna-Kolkaz, Karmala, Yawal
Manipur	Keibul Lamjao
Meghalaya	Balpakram
Mizoram	Dampa
Nagaland	Intangk
Orissa	Simlipal, Satkasia, Chilka lake
Punjab	Abohar
Rajasthan	Ranthambore, Ghana, Sariska
Sikkim	Kanchenjanga
Tamil Nadu	Guindy, Mudumalai, Annamalai, Vedanthangal, Vettangudi
UP	Corbett, Dudwa
W Bengal	Sajnakhal, Jalapara, Deer Parks, Sunderban

all animals, and microorganisms.

**Factor and Environment :** Any external force, substance, or condition that affects organisms in any way, is known as factor. The sum of all such factors constitutes the environment.

**Habitat :** The place, where an organism lives is known as the habitat of that organism.

**Adaptation :** Any feature of the organism or its parts which is of definite significance in allowing that organism to exist under the conditions of its habitat is called adaptation.

**Succession :** Succession is a natural process by which different groups or communities colonize the same area over a period of time in a definite sequence.

**Productivity :** The rate of production (i.e. amount of organic matter accumulated in the



living component of an ecosystem in unit time is called productivity.

**Biodiversity :** Biodiversity is the number of species of different organisms present in an area. Thus biodiversity includes all plants, animals and micro-organism of an area.

Earth is endowed with an immensely rich variety of life forms which roughly consist of 3,00,00 green plants, 8,00,000 insects, 23,000 Fishes, 2,000 Birds, 6,500 Reptiles, 4,100 mammals and few thousand microbes

India is recognized as a country uniquely rich in biodiversity, because of its tropical location, varied physical features and climate. It consists of approximately 850 bacteria, 23,000 fungi, 25,000 algae, 1,600 lichens, 2,664 bryophytes, 1,022 pteridophytes, 64 gymnosperms, 15,000 angiosperms, 53,430 insects, 5050 molluscs, 2,546 fishes, 204 amphibians, 456 reptiles, 1,228 aves and 372 Mammals.

**Conservation of Biodiversity :** Conservation of biodiversity can be divided into two categories : In situ conservation and Ex situ conservation.

**In situ conservation :** This is the conservation of biodiversity through their maintenance within natural or even human made ecosystems in which they occur. This type includes a system of protected areas of different categories, managed with different objectives to bring benefit to the society. National Parks, Sanctuaries, Nature

Reserves, Natural Monuments, Cultural Landscape, Biosphere Reserves etc. belong to this type of conservation.

**Ex situ conservation :** This is conservation outside their habitat by perpetuating sample populations in genetic resource centres, zoos, botanical gardens, culture collections etc. or in the form of gene pools, and gamete storage for fish, germ plasm banks for seeds, pollen, semen, ova, cells etc. Plants are more readily maintained than animals. In this type of conservation seed banks, botanical gardens, pollen storage, tissue culture and genetic engineering have been playing important role.

**Protected area Network :** In situ conservation of wildlife includes a comprehensive system of protected areas. There are different categories of protected areas which are managed with different objectives for bringing benefits to the society. These include : (I) National Parks (II) Sanctuaries (III) Biosphere reserve (IV) Nature Reserves (V) Natural monuments and (VI) Cultural landscape etc.

A sanctuary is an area where killing or capturing of any species of bird or animal is prohibited except under the order of the competent authority and whose boundaries and character should be sacrosanct as far as possible. A sanctuary is the whole or portion of a reserved or protected forest and is declared by Government.

A National Park is an area dedicated by statute for all time to conserve flora and fauna and historical objects of national significance and wildlife and where provision is made for the enjoyment of the same by the public.

A National Park is created legislative action and can be abrogated or modified by the Legislature of the state concerned. There are 67 National Parks and 394 Sanctuaries with a total area of about 1,41,298 sq. km. representing roughly 4% of the country's geographical area.

### Concept of 'threatened species'

The rare species of plants and animals have been categorised for conservation purposes by

the International Union of Conservation of Nature and Natural Resources (IUCN). The following categories have been identified.

**Endangered :** The species which are in danger of extinction and whose survival is unlikely if the causal factors continue to be operating. Their number have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

**Vulnerable :** The species likely to move into the endangered category in the near future if the causal factors continue to operate.

**Rare :** These are species with small populations in the world. These are not at present endangered and vulnerable but are at risk.

**Threatened :** The term threatened is used in the context of conservation of the species which are in any one of the above three categories, viz. endangered, vulnerable or rare.

**Biosphere Reserve :** The idea of biosphere reserve was initiated by UNESCO under the aegis of its Man and Biosphere (MAB) Programme, to provide a global network of protected areas for conserving natural communities. It was a new concept which was elaborated by a workshop convened by UNESCO in 1973, which highlighted the need to conserve diversity of living organisms essential for economic, scientific, educational and cultural needs of the present and future generations. Following are the objectives of Biosphere Reserve.

- (i) To conserve representative samples of ecosystem of the world as opposed to species or habitat conservation
- (ii) To promote and facilitate ecological and environmental research
- (iii) Provide opportunities for education and training to local people regarding Biosphere and its conservation.
- (iv) Promote appropriate sustainable managements of the living resources.
- (v) Promote international co-operation.

In brief we may say that special feature of Biosphere Reserve is that it combines four major

## Tiger Reserves of India

Name of the Reserve	State	Number of Tigers
1. Bandipur (1973)	Karnataka	65
2. Corbett (1973)	U.P.	123
3. Kanha (1973)	M.P.	100
4. Manas (1973)	Assam	81
5. Melghat (1973)	Maharashtra	72
6. Palamau (1973)	Bihar	44
7. Ranthambhore (1973)	Rajasthan	36
8. Simlipal (1973)	Orissa	95
9. Sunderbans (1973)	W. Bengal	251
10. Periyar (1982)	Kerala	60
11. Sariska (1982)	Rajasthan	24
12. Buxar (1983)	W. Bengal	29
13. Indravati (1983)	M.P.	18
14. Nagarjun Sagar (1983)	A.P.	51
15. Namdapha (1983)	Arunachal Pradesh	47
16. Dudwa (1987)	U.P.	94
17. Kalked Mundanthurai (1988)	Tamil Nadu	17
18. Balmiki Park	Bihar	49
19. Bandhavgarh	M.P.	41
20. Pench Park	M.P.	39
21. Panna	M.P.	25
22. Tadoba Andheri	Maharashtra	34
23. Impha Park	Mizoram	7

objectives (i) conservation (ii) research (iii) education, and (iv) local involvement

They include a wide range of ecosystems, ranging from undisturbed communities to degraded areas. In a Biosphere reserve, multiple land use is permitted by designating various zones, the Core zone (where no human activity is permitted), the Buffer Zone (where limited human activity is allowed) and the manipulation zone (where a large number of human activities would go on).

The core area of Biosphere Reserve should be kept completely free from tourism or any other activity. The buffer zone, can be used, in a limited way, for wildlife educational tourism and related (nondestructive), social, cultural and economic

activities by the local population. Indian MAB Committee in 1979 has identified a network of the following 13 representative ecosystems to be protected as Biosphere Reserves

Biosphere Reserve	State/U.T.
1 Namdapha	Arunchal Pradesh
2 Uttarakhand (Valley of flower)	U.P.
3 Gulf of Mannar	Tamil Nadu
4 Sunderbans	West Bengal
5 Thar Desert	Rajasthan
6 Manas	Assam
7 Little Rann of Kutch	Gujarat
8. North Islands of Andamans	Andaman & Nicobar
9 Nanda Devi	Uttar Pradesh
10 Kaziranga	Assam
11 Kanhe	M.P.
12 Nokrek (Tura Range)	Meghalaya
13 Nilgiris	Karnataka, Kerala and Tamil Nadu

## Special Projects for Endangered species

**Project Tiger** : There were about 40,00 tigers during 1909-10 in India. This number was reduced to 2500 by the year 1972. The scheme Project Tiger was launched on 1st April 1973 to ensure maintenance of viable population of the tigers in India for scientific, economic, aesthetic, cultural and ecological values.

These objectives have been achieved as can be seen from the fact that the tiger population in the country has risen from less than 2500 in 1972 to more than 4300 in 1989. Number of tiger reserves have increased from 9, covering an area of 14,000 sq. km. in 1973 to 18, covering an area of 28,609 sq. km. in 1991. At present there are 23 tiger reserves in India. The main threat to the tiger is due to poaching. The demand for tiger bones which is supposed to have aphrodisiac effects. China banned tiger products in 1992. An Indo-China Protocol was signed for stopping the trade on tiger bones and skin. The Country Action Plan for Tiger Preservation was initiated to extend

Project Tiger to tigers living outside protected areas. It was also sought to increase international co-operation among countries with significant tiger population such as China, Nepal, Bhutan, Bangladesh, Myanmar, Russia, Laos, Vietnam, Malaysia and Indonesia. This resulted in the establishment of the Global Tiger Forum (GTF) to coordinate the activities between these countries. In March 1999 India hosted the Millennium Tiger Conference (MTC) of the GTF countries.

**Project Elephant** : The elephant habitat has shrunk over the years, and poaching for elephant tusks has endangered the species. Project Elephant was launched in 1991-92 to assist states having wild elephants to ensure long term survival of identified viable populations of elephants in their natural habitat.

In India elephants are mainly found in rain forests of Karnataka, Tamil Nadu and Kerala; Western Bengal, Bihar, Central and Western region, foothills of Himalaya in north-east and Uttar Pradesh. India has about 20,000 elephants.

The project provides for restoring the lost and degraded habitats of elephants including creating of corridors for migration of elephants, mitigation of man-elephant conflict and establishment of database on the migration and population dynamics of elephants.

**Gir Lion project** : The Gir forest in the Saurashtra peninsula of Gujarat is the only surviving habitat of the Asian lion, *Panthera leo persica*. Clearing of forest for agriculture, excessive cattle grazing and other factors led to decline in the lion population. The Gir National Park has a total area of 258.71 sq. km. with a total of 28 lions in it.

**Crocodile breeding project** : The project started from a proposal for development of crocodile farming industry in India. Crocodile husbandry work was undertaken with a view to develop sanctuary. A total of 16 crocodile rearing centres have been developed in the country in eight states. Eleven sanctuaries have been declared under the project.

**Rhinos conservation :** The centrally sponsored scheme conservation of Rhinos in Assam was introduced in 1987 and was continued for effective and intensive management of rhino habitat. The number of Rhinos has been increased from 1591 in the year 1989 to 1855 in 1992.

**Snow leopard project :** This project is being taken to create 12 Snow-Leopard Reserves throughout the Himalayas.

**Chiru conservation :** The concern about chiru mainly started in 1992 when George Schaller, a wildlife expert claimed that the chiru was shot and then fleeced, to make Shahtoosh shawls. This shawl is as soft as a baby's skin, it can be passed through a ring and is said to be so warm that shahtoosh lore has it that if you wrap an egg in the shawl, it will hatch.

On October 5, 1977 the Tibetan antelope or chiru was listed in Article 36 A of schedule I of the Indian Wildlife Act 1972. A shawl purchased before 1977 would be legal provided it has been registered with the chief wildlife warden of the state. But the shawls are legal in Jammu and Kashmir because the state has refused to extend the Indian Wildlife Act to the state.

The Chinese claim that the chiru population was around one million at the turn of the century,

but has now dwindled to only 79,000. On an average 20,000 chiru are poached each year.

**Convention on Biological Diversity (CBD) :** The United Nations Convention on Biological Diversity is intended to ensure effective international action to curb the destruction of biological species, habitats and ecosystems. It was opened for signature at the UN Conference on Environment and Development- the Earth Summit in Rio de Janeiro, Brazil on 5th June 1992. The Convention subsequently came into force on 29 December 1993. As on 1 June 1997, 169 countries had ratified the convention.

CBD sets three goals - (i) the conservation of Biodiversity, (ii) sustainable use of biological resources, (iii) equitable sharing of benefits which would from such use.

It recommends in situ conservation as the fundamental mechanism and ex situ methods as complementary mechanism. The convention encourages research on resources to be carried out in the country of origin. They should share benefits arising from the commercial use of genetic resources with the country providing the resource.

**Deforestation (Forest Destruction) :** Deforestation is a threat to the economy, quality of life and future of the environment. Main causes of

## Pollution menace

Scientists have discovered a massive polluted area of air in the Indian Ocean which amounts roughly to the size of continental United States. The area of polluted air extends to 10.3 million square kilometers and may in the near future, snowball into an environmental disaster for the region in general, and India in particular. Scientists working on a study called INDOEX (Indian Ocean Experiment) have found that tiny pollutant particles called aerosols are mainly responsible for this pollution. They comprise several kinds of minute by products, which include soot and sulphur droplets. Monsoon winds were basically found to be the carriers of these polluted particles from densely populated countries of Asia. The aerosols affect the climate of the earth by reflecting solar radiation, causing atmospheric acid rain that could harm both terrestrial and marine life. However, besides the Indian Ocean, the Arabian Sea and the Bay of Bengal are also affected by this pollution menace.

The initial results of the exhaustive experiment, conducted by scientists from the U.S.A., Maldives, India and some other European countries, reveal that the pollutants have both warming and as well as cooling effect on global climate, though further experiments are needed to determine its effect on marine life. If the prevailing pollution of large stretches of air results in preventing sunlight from reaching the water surface, it would in the near future, have an adverse repercussion on the plant life under the water and may eventually disturb the ecological balance of the oceans.



deforestation in India are : explosion of human and livestock population, increased requirement of timber and fuel wood, expansion of cropland and enhanced grazing. Another cause of forest degradation is construction of roads along the mountains. Increased demand for fuel wood, wooden crates, paper, board and newsprint have led to large scale tree felling. Ideally one third (or 33%) of land of a country must be covered by forest. In India, forest cover is only 18.52% out of which only 12% are thick forest. Rest is bushy land (6.5%)

Deforestation has caused intensified soil erosion, accentuated floods and drought and loss of precious wild life and has led to deterioration of economy and quality of life of two weaker sections of the society.

India is losing about 1.5 million hectares of forest cover each year. Nearly one percent of the land surface of India turning barren every year due to deforestation. In the Himalayan range, the rainfall has declined 3 to 4 percent due to deforestation.

### Project to save genetic heritage

A Indian Council of Agricultural Research (ICAR) has formulated a plant biodiversity management programme including cataloguing and preserving the country's genetic heritage. The five-year project will be implemented by the newly-created Council for National Science and Technology Mission on Conservation of Agro-biodiversity. The World Bank funded National Agriculture Technology Programme will fund the programme from the resources available with it.

The lead institution for the project will be the National Bureau of Plant Genetic Resources (NBPGR). The project will be carried out at 81 selected centres located in the 10 exploration and collection zones throughout the country. Apart from ICAR and NBPGR, the other organisations involved in the programme would be the Council of Scientific and Industrial Research (CSIR), ministries of environment, forests, defence and state agricultural universities and several other organisations.

**Afforestation :** Forests occupy central position in nature. They restore ecological balance of all ecosystems, maintain biological diversity, act as catchments for soil and water conservation, prevent floods and safeguard future of tribal people. In order to meet such needs we need to develop massive afforestation programme of indigenous and exotic fast growing species for production and protection of forestry on suitable land including wasteland. A massive social forestry programme is needed, to meet demands of local people for fuel, fodder, timber etc. Then there is need for wood based industry. Today, the two major goals for forestry are:

- (i) Supply of goods and services to people and industry by a well thought out plan of production, and long term ecological security through conservation of forest cover and its restoration.
- (ii) Conservation of forest or Reserve forests- National parks, sanctuaries, sacred groves, Biosphere Reserves and all ecologically fragile areas are covered by government of India. No commercial exploitation can be allowed in these areas.

**Limited production forestry :** In these forests the annual increment may be harvested in a very careful and controlled manner so as to avoid soil and tree damage. These forests are present in hilly areas at the height of more than 1000 meters.

**Production forests :** These are forests of plain. Their scientific exploitation does not pose any threat to environment.

**Intensive plantation :** This includes planting of all the available land from village fields, to community land and to road/rail sides and available space. Social and agro forestry programmes are included in this category.

**Production plantations :** This is entirely commercial forestry developed to meet the need of the forest based industry. Plantations are to be done on fallow land not being used for agriculture, mostly free grazing lands. Short rotation species are to be preferred over long duration sal and teak.

**Social and Agroforestry :** The Social forestry Programme started in 1976. It seeks the use of public and common land to produce firewood, fodder, and small timber for the use of the rural community to relieve pressure on existing forests needed for soil and water conservation. The programme includes raising, planting and protecting trees with multiple uses (firewood, fodder, agricultural implements, fruits, etc.) for the rural community.

The Agroforestry Programme consists of reviving an ancient land use practice where the same land is used for farming, forestry and animal husbandry.

The National Forest Policy, 1988, stressed people's involvement as one of the essential components of forest management in the development and protection of forests. The main features of the 1988 Forest Policy are (i) maintenance of environmental stability through preservation and restoration of ecological balance, (ii) conservation of natural heritage, (iii) check of soil erosion and denudation of catchment areas of rivers, lakes and reservoirs (iv) check on extension of desert areas, (v) substantial increase in forest density through afforestation (vi) steps to meet requirements of fuelwood, fodder, minor forest produce and timber for rural and tribal populations (vii) increase in productivity of forest to fulfil the natural needs (viii) encouragement of efficient utilisation of forest produce and optimum substitution of fodder and fuel wood (ix) steps to promote people's participation in forest conservation.

**Environmental Pollution :** Environmental pollution is a serious problem of the industrialised societies because people have converted the life supporting systems of the entire living world into their own resources and have vastly disturbed the natural ecological balance. Serious degradation and depletion have been caused through over use, misuse and mismanagement of resources to meet the human needs and to satisfy the increasing demands.

Pollution may be defined as an undesirable change in the physical, chemical or biological

## Global Warming

Scientists continue to be worried by the phenomenon of global warming. Notwithstanding the highly exaggerated predictions by environmentalists, scientists are veering to the view that the world is indeed facing a grave threat from the effects of global warming. Scientists have recently discovered that the Quelapaya ice cap in the South American Andes- the hemisphere's largest glacier is melting. There are other precarious indicators too: half the glacier ice on the European Alps has dwindled over the past 100 years. Antarctica is experiencing its hottest temperatures in over 4,000 years. In October 1993, an iceberg 7,125 sq km in area, separated from the Ronne ice shelf, the second-largest ice cap in Antarctica. The Arctic ice, too, is now a third thinner than it was in 1976. Meanwhile, the Inter-governmental Panel on Climate Change (IPCC) in its scientific consensus has warned that global mean temperature will rise by 1 degree-3.5 degree in the 21st century. Statistical evidence also speak for themselves. Thirteen of the 14 hottest years in the history of the planet have occurred since 1980, and six of the first eight months of 1998 were the warmest since 1856, with July being the hottest single month ever recorded.

characteristics of air, water and land that may have lethal attack human life, the lives of other species, on industrial processes, living conditions and cultural monuments or that may or may waste or deplete raw material resources.

**Air Pollution :** The normal composition of clean air is as follows:

Gases	Percentage by volume
Nitrogen	78%
Oxygen	21%
Argon	0.93%
Carbon dioxide	0.03%
Other gases	Trace amount

But due to air pollution the composition of the air is changing all over the world particularly in most industrialised countries. Air pollution results from gaseous emission from industry, thermal power stations, domestic combustion etc. Most of the gaseous and particulate air pollutants are

products of burning of fuels. Burning of coal mainly produces carbon dioxide, sulphur dioxide ( $\text{SO}_2$ ) and fly ash. Lead, carbon monoxide and nitrogen oxides are added to the atmosphere from automobile exhaust.

Nitrogen oxides & sulphur dioxide together are responsible for acid rain. Carbon monoxide is highly toxic and impairs oxygen carrying capacity of blood. Several cases of death are reported every year from carbon monoxide poisoning from gas heaters, heating devices and coal mines. Lead which is emitted by automobile is known to hamper haemoglobin formation. Compounds containing chlorine and fluorine, especially the chlorofluorocarbons are widely used as propellants, and as refrigerants. They cause ozone depletion in stratosphere. Air borne solid and liquid particulates are emitted by various industries and also in operations such as blasting, drilling, crushing, grinding and drying. These particulate may cause lung diseases if inhaled.

Haemoglobin is known to absorb  $\text{NO}_2$  more easily than oxygen. About 80 to 90 percent  $\text{NO}_2$  inhaled is easily absorbed into the bloodstream.

### **Living Planet Report**

The World Wildlife Fund (International) has issued the Living Planet Report 1999, which aims to measure the global loss of biodiversity. The report includes the Living Planet Index (LPI), an indicator of the overall state of the earth's natural systems. The LPI measures indicators like the area of the world's forests, the population of different marine and freshwater species and how this natural wealth has changed over time. According to the report, the LPI declined sharply by 30% from 1970 to 1995, implying that the world has lost 30% of its natural wealth in the space of one generation. The report cites six causes of global environmental change. The first three relate to the consumption of renewable resources and the second three relates to the effect on biosphere as a result of use of artificial fertilisers, emissions of carbon dioxide into the atmosphere and the consumption of cement.

This reduces the oxygen-carrying capacity of blood.  $\text{NO}_2$  causes lung tissue to become leathery and brittle and can cause lung cancer and emphysema (breathing problem). Emphysema occurs due to the breakdown of the air sacs in the lungs, which then progressively diminishes the ability of the lungs to exchange and carbon dioxide in the blood stream. Thus  $\text{NO}_2$  causes bronchitis and bronchopneumonia. In presence of sunlight,  $\text{NO}_2$  reacts with hydrocarbons to produce ozone, a highly toxic gas, known to cause asthma.

**PM 10 & PM 2.5 :** PM stands for particulate matter & the numbers 10 & 2.5 are diameter of particles in micrometer (Mm). The particles less than 10 Mm diameter which are called respirable suspended particulate matter (RSPM) can enter into human nasal tract and particles smaller than 2.5 Mm can reach further inside upto terminal bronchi & alveoli in the lungs. These particulate may cause serious lung diseases-tumour, cancer etc.

**Water Pollution :** Water pollution adversely changes the quality of water. It disturbs the balance of ecosystem and it causes health hazard to humans and animals. Water becomes polluted by the presence or addition of inorganic, organic or biological substance.

Effluents from factories, paper mills, sugar mills, tanneries, urban & rural sewage let into rivers. Water pollution also occurs due to use of pesticides and fertilizers in agriculture. Enrichment of water by nutrient (especially phosphates and nitrate) results in eutrophication of lakes and water bodies. This results in excessive growth of harmful blue green algae & depletion of dissolved oxygen present in the lake.

Ocean waters are polluted by discharge of sewage from cities located along the coast, effluents from factories & discharge from polluted rivers. Oil spills from oil tankers also causes marine pollution. Various harmful chemicals like DDT can enter into the food chain through polluted water.

For example the DDT which enters with sewage into the river can be absorbed by aquatic plants which in turn will be eaten by herbivorous small

animals, these small organisms when eaten by fish get DDT with the organism, and finally when any human eats this contaminated fish they get DDT. Not only DDT as such as in its original form keeps on moving from water to different living components of the pond system but more threatening is that DDT concentration continuously increases in successive trophic levels in a food chain. This phenomenon is known as biological magnification. Besides DDT there are also heavy metals like lead, mercury, copper which also show similar behavior in food chain.

**Radioactive Pollution :** Radioactive pollution is related to all major life supporting systems - air, water and soil. Radioactivity is a phenomenon of spontaneous emission of proton, electrons and gamma rays as result of disintegration of atomic nuclei of some elements. Many radio-nuclides such as radium 224, uranium 235 & 238, thorium 232, radon 222, potassium 40 and carbon 14 occur naturally in rocks, soil and water. Man made sources of radiation pollution are mining and refining of radioactive material, production and explosion of nuclear weapons, nuclear power plants and fuels and preparation of radioactive isotopes.

All organisms are affected by radiation pollution. In high doses radiation can cause instant death. In lower doses it can affect all organs seriously and impair their functions. Long or repeated exposure can cause cancer and leukemia and induce mutation.

**Noise Pollution :** Noise can be defined as unwanted sound. Whether a sound is pleasant or a noise depends upon loudness, duration, rhythm and the mood of the person. The most significant attribute of noise is its loudness. Exposure to loud sound is annoying and harmful.

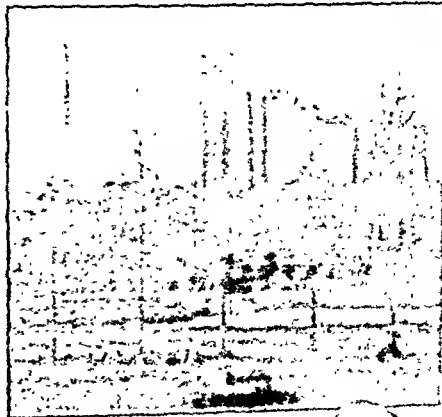
The most immediate and acute effect of noise pollution is impairment of hearing. Damage to the ear drum can be caused by loud sound or by prolonged exposure to noise. In addition to impairment of hearing, the first effects are anxiety and stress and in extreme cases fight. The physiological manifestation of noise pollution are increase

## El Nino

El Nino literally means child Christ in Spanish. It takes its name from the fact that it arrives usually during season of Christmas. This weather phenomenon which occurs in cycles, results in a reversal of wind flows. Instead of blowing from South America towards Asia across the Pacific, El Nino results in the reverse flow from Asia towards South America. So, instead of bringing in rains to Asia, it takes away the moist air and dumps unwanted rains across the Pacific, causing floods. For Asia, it leaves large tracts like Indonesia without rains and creates droughts in some South Pacific islands or even Australia.

It occurs because of the warming up (which is generally cold during winters) of the coastal waters of the eastern Pacific in South America, off the coast of Peru. This warming spreads westward into the central Pacific. (The stronger the El Nino, the more intense the changes in the weather). Due to warm waters a low pressure is created over southern Pacific ocean (which usually has a high pressure) and to balance it a high pressure develops over Indonesia (which usually has a low pressure over it). As a result the reversal of wind flow occurs.

The 1997 El Nino was worse for Asia, particularly Indonesia. Papua New Guinea faced severe droughts. Forest fires in Indonesia worsened by the drought and dry weather are supposed to be caused by El Nino.



the rate of heart beat, constriction of blood vessels, digestive spasms and dilation of pupil of the eye. Loudness is the strength of sensation of sound perceived by the individual. It is measured in terms of decibels. Just audible sound is about 0 dB, a whisper about 20 dB, library place 30 dB, normal conversation 35-60 dB, heavy street traffic 60-80 dB, boiler factories 120 dB, jet planes 150 dB, rocket engine about 180 dB. Sound beyond 80 dB can be safely regarded as pollution as it harms hearing system.

**Soil pollution and land degradation :** Because the process of soil formation is very slow, the soil may be considered as a non-renewable resource. There are many natural and synthetic materials that can adversely affect the physical, chemical and biological properties of soil and seriously affect its productivity.

The soil pollutants include pesticides, fertilizers, industrial wastes, mining wastes, salts, radioactive materials, tin, iron, lead, mercury, aluminium & plastics, pesticides adversely affect the micro-organisms present in soil in addition to this pesticides enters in human food chain either through plants or through water which accumulated as surface runoff or leached down in the ground water with pesticide dissolved in it.

Poisonous waste render soil unfit for crop production. The dangerous metals like fluoride and nitrate when present in soil, not only contaminate the crops but also ground water of that area.

Increase in the concentration of soluble salts adversely affect the soil productivity and degrades the quality of land. Salts dissolved in irrigation water accumulate on soil surface due to capillary salinisation. Total amount of saline land in our country is estimated at six million hectares.

Land and soil surface face several problems other than pollution. These are deforestation, erosion, flooding and water logging, salinisation and ill-planned urban encroachment. If soil depletion and land degradation continue at current rates it is estimated that about one-third of the arable land will be destroyed by the end of the century.

**Control of land degradation :** Control of

land loss can be attempted through restoring forest and grass cover to check erosion and floods. Shifting cultivation can be replaced by crop rotation, mixed cropping.

Salinity can be prevented by providing the flood prone and irrigated lands with adequate drainage. Salt affected land can be recovered by leaching them with more water, especially where the ground water table is not high. Shifting sand or desertification can be controlled by mulching (use of artificial protective covering) or covering the area with appropriate plant species and by raising trees and bushes as wind break.

**Climate change :** Back in the 1960s and 1970s, after some years of careful observations of carbon dioxide in the atmosphere, it became evident that its concentration was increasing. In this context, earlier findings which indicated a possibility of climate change due to so called greenhouse effect of carbon dioxide and other radioactively active gases assumed great significance. The increase of concentration of carbon dioxide and, subsequently, observed increase of concentration of methane and other, greenhouse gases were attributed, to a considerable extent to human activities, in particular to emissions of greenhouse gases into the atmosphere from the burning of fossil fuels. It was recognized that global climate can be modified by inadvertent human action.

We can study the global climate change under the following three subheadings: Global warming, Greenhouse effect, Ozone depletion.

**Global warming :** Global warming has often been described as one of the most serious environmental problems ever to confront humanity as this problem is closely linked to the process of development and economic growth itself.

While the pattern of future warming is very much open to debate, it is indisputable that the surface of the Earth has warmed, on average, 0.3 to 0.6°C since the late 19th century. The ten warmest years in the last 130 have all occurred in the 1980s and 1990s. And within this ten, the three warmest years were in 1990s.

Global climate models show that a

- Human health may also be affected as rising temperatures expand the area vulnerable to tropical diseases such as malaria and dengue fever.
- By shifting precipitation pattern that determine placement of clean water supply and sanitation infrastructure, a warming climate could undermine these services.
- Farmers in wealthy countries, aided by lengthened growing season, are likely to fare better than those in most developing countries, because many tropical crops. May not tolerate increased warmth. One per cent. reduction in  $O_3$  increases UV radiation on earth by 2%. This increase will induce skin cancer particularly in white populations. In addition the global incidence of severe eye diseases (e.g. cataracts) can be expected to go up. It will also affect human immune system. Risks involved for plants and micro organisms are much more serious than direct effects on human health. Many crop plants are sensitive to ultraviolet radiation affecting their yields. UV induced reduction in the crop yields of crop plants, in turn, might have serious consequences with regards to global food supply and food security.

**Antarctic Ozone Hole :** It was first discovered in 1982 by the British Antarctic survey, an institute of The Natural Environmental Research Council; by 1985 it was clear that the Ozone layer is destroyed over Antarctic every year during spring season (Sept. - Oct.) leaving a hole in the stratosphere through this hole harmful UV-B rays can enter into the earth's atmosphere.

Studies have shown that during winter vortex of very cold air blow over the pole. So neither sunlight nor warmer air from lower latitude enters in this vortex. The concentration of chlorine monoxide ( $ClO$ ) is usually very high in this vortex of cold air which is responsible for Ozone destruction. But it can not destroy ozone during this time, since Ozone breakdown reactions require light and Antarctic winters are dark with the onset of spring, sunlight returns and chlorine monoxide reacts with ozone breaking it down to

oxygen. Under certain conditions one molecule of  $ClO$  can destroy 10,000 to 100,000  $O_3$  molecules

**Ozone Depletion & Ozone Hole :** The sun emits radiation over a broad range of wavelength to which human eye respond in the region from approximately 400-700 nm. The range can be divided into three categories.

(Ultra violet) UVA-320-400 nm-not absorbed by ozone.

UVB-280-320 nm partially absorbed by ozone

UVC-200-280 nm-completely absorbed by ozone

Ozone is produced and destroyed at a wide range of altitudes in the atmosphere. About 90% of the ozone is present in the stratosphere. The maximum concentration (about 0.5 PPM) occurs between the altitude of 20 to 35 km and the layer at this level is called ozone layer. The presence of ozone is an essential necessity for life on earth. Stratospheric ozone layer absorbs dangerous UVB rays of the sun and thus protects the earth's surface from these high-energy radiation.

Over the last few decades  $O_3$  layer is thinning out because of man made pollutants which catalyse the dissociation of  $O_3$  at a very fast rate.

Major pollutants responsible for depletion of ozone are chloro fluorocarbons (CFCs), nitrogen oxides, hydrocarbons, oxides of chlorine and bromine. One percent reduction in  $O_3$  increases UV radiation on earth by 2%. This increase will induce skin cancer particularly in white populations. In addition the global incidence of severe eye diseases (eg. cataracts) can be expected to go up. It will also affect human immune system. Risks involved for plants and micro organisms are much more serious than direct effects on human health. Many crop plants are sensitive to ultraviolet radiation affecting their yields. UV induced reduction in the crop yields of crop plants, in turn, might have serious consequences with regard to global food supply and food security.

**The Montreal Protocol :** In 1987, representatives from 43 countries discussed the Montreal Protocol on the control of chemicals that deplete the stratospheric ozone layers, at Montreal, Canada and the Protocol came into force on 1st

effect,  $\text{CO}_2$  concentrations have increased from 280 parts per million at the dawn of the industrial revolution to around 355 ppm today. Each year human beings shift 6 billion metric tons of fossil carbon (coal, petroleum, natural gas) from the earth to the air in the form of 22 billion tons of  $\text{CO}_2$ . The destruction of forests and the degradation of soils adds an estimated 5.9 billion tonnes of  $\text{CO}_2$  to the atmosphere. About half of  $\text{CO}_2$  released by human activities is quickly absorbed by the oceans and plants and half of the global emission remains in the atmosphere indefinitely, contributing to green house effect.

Methane ( $\text{CH}_4$ ) is released as a result of the combustion of carbon and microbial decay in the absence of oxygen. This occurs in the cultivation of wetland rice, the burning of plant material, landfills and the digestive systems of cattle and termites. Methane also emanates from coal mines and the production & distribution networks, of natural gas. Methane is 50 times more powerful in trapping heat than carbon dioxide, human activities have more than doubled its concentration from 0.7 ppm (parts per million) in pre-industrial times to more than 1.7 ppm today.

Because it is removed from the atmosphere relatively rapidly by chemical reactions in the air, emissions reductions of only about 15 to 20 percent would be required to stabilize methane at its current high concentrations.

Nitrous oxide ( $\text{N}_2\text{O}$ ) is produced by a variety of biological processes in soils and water. Although its concentration increase of 8 percent since pre-industrial times (from 288 to 310 parts per billion) is because of human influence. Soil cultivation, biomass, burning and fossil fuel combustion all play some role in nitrous oxide production. Bringing new land into cultivation may be the largest source of the gas. Two recently identified major sources are the production of nylon and nitrogen fertilizer. It is estimated that a 70 to 80 percent reduction in human emissions of  $\text{N}_2\text{O}$  would be needed in order to stabilize concentrations at their present high level.

**Chloro fluoro carbons (CFCs) :** Industrial

gases known as CFCs are powerful heat trappers. But the net impact of CFCs on climate change may be neutral because they also contribute to the depletion of upper atmosphere ozone layer. Production of CFCs is being gradually phased out under the Montreal Protocol, but they are still abundant in the atmosphere. Some of the compounds being developed to replace them are also green house gases.

**Ozone ( $\text{O}_3$ ) :** Is a powerful green house gas in the upper atmosphere ozone which protects living beings from the sun's potentially harmful ultraviolet-B radiation. Near the earth's surface, however, ozone is a human made pollutant produced by the interaction of sunlight and industrial and vehicle waste gases that damages living tissue and some plants.

**Water ( $\text{H}_2\text{O}$ ) vapour :** Is the most abundant green house gas, its concentrations are regulated by overall atmospheric temperature and pressure, not human emissions. However, water vapour plays a major role in human induced climate change through what is called a feedback loop. If increasing concentrations of carbon dioxide and other gases raise global temperatures, that will draw more water vapour by evaporation and evapotranspiration into the atmosphere, amplifying the warming.

## Impact of Green house Effect

The earth's temperature will rise, on a world wide average, temperatures would rise by 1 to 3.5°C by the year 2100. If  $\text{CO}_2$  concentration doubles, global sea level could rise from 6 to 10 centimeters by the year 2030 and by as much as one meter by the end of the 21st century. Rising of one meter will permanently inundate the 100,000 square miles of low-lying coastal land.

- Polar ice caps will melt.
- Rising sea level will cause salinisation of coastal waters.
- Many animal and plant species will become extinct in the changed environment.
- Agriculture will decrease because of changing climate and microbial population.

- Human health may also be affected as rising temperatures expand the area vulnerable to tropical diseases such as malaria and dengue fever.
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**The Montreal Protocol :** In 1987, representatives from 43 countries discussed the Montreal Protocol on the control of chemicals that deplete the stratospheric ozone layers, at Montreal, Canada, and the Protocol came into force on 1st



January 1989. The salient features of the Montreal Protocol are:

- Freeze production and consumption of CFCs at 1986 levels by 1990, reduce them to 80 percent of 1986 levels by 1994 and to 50 percent of these levels by 1999.
- Production and consumption of halons will be frozen at 1986 levels from 1992.
- Developing countries to delay compliance with the control measures and developed countries promises them with financial assistance.
- It permits any developing country with per capita annual consumption of CFCs of less than 0.3 kg to delay compliance with the control measure by 10 years.
- Each party to ban the import of CFCs on 1 Jan 1990 and as of 1 Jan. 1993, each party shall ban the export of any CFCs
- Promotion of research, development and exchange of information on the best technologies, particularly on improving the containment, recovery, recycling and destruction of controlled and transitional substances or otherwise reducing their emissions, possible alternatives to controlled substances
- Financial mechanisms for the purpose of providing financial and technical co-operation, including the transfer of technologies to parties

**Helsinki Declaration, 1989 :** In May 1989 the parties to the Montreal Protocol made a declaration known as the Helsinki Declaration on the Protection of Ozone layer to phase out the production and consumption of CFCs as soon as possible and in any case not later than 2000

**London Conference, 1990 :** The second meeting of the parties to the Montreal protocol was held in June 1990 in London. This meeting produced an agreement to phase out CFC consumption completely in the developed countries by the year 2000 and in the developing countries by the year 2010.

**Copenhagen Conference, November 1992:** According to this, the parties to the Montreal Protocol decided to accelerate the phase out

deadline as follows:

- Complete phase out of ozone depleting CFCs by 1 Jan 96.
- Speed up the total elimination of halons by six years from 1994 to 2000.
- 100% phase-out of carbon tetrachloride by 1995.
- Phase out of HCFCs by 2030.
- Included methyl bromide in the regulatory list.
- Converted the Interim Multilateral Fund into a Permanent Multilateral Fund.

**Kyoto Conference :** The third Conference of Parties (COP3), that is, nations which have become signatories to the Framework Convention of Climate Change (FCCC), was held in Kyoto, Japan in December 1997. The main aim of the conference was to thrash out an agreement by the participating countries to reduce green house gases. The salient features of the Kyoto agreement are:

- To cut emissions of six green house gases by 5.2 percent below either 1990 or 1995 levels averaged over the year 2008 to 2012.
- The accord targetted 38 developed countries besides the European Union's eight percent aggregate cut, Australia's eight percent and Iceland's 10 percent.
- Japan took 6% cut while US to cut 7%.
- China and India facing no binding commitments to do anything.

**Convention on Climate Change :** The fourth session of the conference of the parties of the United Nations Framework Convention on Climate Change (CUP4). Around 150 countries participated in the conference which was convened primarily to discuss the implementation of the Kyoto Protocol of 1997, to consider communication from the various parties detailing national positions on various parameters related to the emission of green house gases, and to discuss issues relating to the transfer of technologies, particularly those related to the energy sector. CUP4 also debated the three controversial issues flexible mechanism, clean Development Mechanism, International Emission trading and joint implementation

The US adopted a hardline approach rebuffing the demands of developing countries led by the G-77 and China that technology transfers be made easier so that objectives of the convention may be achieved. China, and later India, demanded that distinction be maintained between the 'luxury emission, of developed nations and the survival emission of developing nations.'

### Euro-Emission Norms

Euro I, II names are given to emission norms for new petrol & diesel driven vehicles. In this extent of emission of carbon mono-oxide (CO), Hydrocarbon, Nitrogen oxide (Nox) and particulate matter have been specified in terms of gram/km: All car manufacturers wanting to sell their cars in the National Capital Region (NCR) will have to meet these norms enforced in NCR from June 1, 1999:

#### Euro I

Pollutant	Petrol driven vehicle	Diesel driven
CO	2.2	3.16

HC	1.13	1.13
Particulate Matter	Nil	0.14
NOx	1.13	1.13
Euro II. (To be enforced in NCR from April 1, 2000)		
Pollutant	Petrol driven vehicle	Diesel driven
CO	2.20	1.0
HC	0.50	0.90
Particulate Matter	Nil	0.08
NOx	0.50	0.70-0.90

Note : Euro I Euro II norms for new petrol and diesel cars following the Supreme Court order of April 20, 1999

### Environmental Impact Assessment

Now a days Environmental Impact Assessment (EIA) is a must for new projects before they are environmentally cleared for implementation

The purpose of EIA is to identify and evaluate the potential impacts (beneficial and adverse) which new development projects may have on the environment and eco-system as well as on the social, cultural and aesthetic concerns of the people.

### Towards Sustainable Environment

June 5 is observed as World Environment Day. In this context, a roundup of some of the major initiatives the government has taken to protect and conserve the environment.

#### Policy initiatives

- Strategy formulated to achieve 33% forest cover in the country
- Identification of parameters for declaring eco-sensitive zones
- A draft Biological Diversity Act for conservation, sustainable utilisation and equitable sharing of benefits biological resources.
- Action Plans for pollution control for National Capital Region of Delhi and Mumbai Metropolitan areas.
- One new tiger reserve created each in Karnataka and Maharashtra
- Setting up of Coastal Zone Management Authorities to protect India's vast coastline
- Environmental Surveillance Squad established for checking industrial pollution.
- Programme for planting 50 trees in each village

for the country launched

- State of Environment Report for the country prepared
- 1005 centrally funded schemes for reducing pollution loads in 22 major rivers

#### Preventive measures

- Export of 29 endangered medicinal banned
- Hospital wastes segregation, treatment and disposal regulated under Biomedical Wastes Rules 1993
- Lead eliminated from petrol in the National Capital Territory of Delhi.

#### Major thrust areas for future

- National Environment Action Plan for control of pollution in the offing.
- Steps to be taken for conservation of biodiversity of Western Ghats and North-East
- Amendments to Indian Forest Act and Wildlife Protection Act mooted for more effective conservation
- Setting up of National Environment Fund planned

## Global Environment Facility (GEF) and India

UNDP's environment mission in India, as in other countries, is heightened by its role as joint implementing agency in the Global Environment Facility (GEF) and in managing the small grant programme. The GEF is a tripartite partnership of UNDP, the World Bank and the UN environment programme to help protect four areas of the global environment-biodiversity, climate change, oceans and international waters, and ozone depletion.

India is eligible for funding under all GEF focal areas except the ozone depletion, as these are addressed via the Montreal Protocol. As of May 1999, under the UNDP-GEF portfolios, a total of US \$ 40 million has been allotted for India. In addition, the govt of India and other participating institutions have contributed about US \$ 40 million to these projects, which makes the total UNDP-GEF portfolio in India worth around \$ 80 million. India is the second largest recipient of GEF funding and there have been so far seven operational projects, five medium scale projects, six preparatory phase projects, 24 small grant projects and several other projects are in the pipeline covering the focal areas of bio-diversity, climate change and international waters.

Where an EIA study is required, much field work has to be done to be able to establish the present ecological environmental and socio-economic baseline data against which future impacts can be envisaged at this state, and perhaps verified at later date.

In planning the work, prior knowledge of the ecological consequences of various actions is required so as to be able to obtain the right type of baseline data and apply correct methods of estimation and prediction of impacts. The tools used for providing scientific support to environmental impact assessment studies include

- Source inventories of pollutants
- Transmission through food chains and webs.
- Use of mitigation measures (Treatment/abatement).

- Mathematical computations of dilution, dispersion, settlement.
- Interception of pollutants.
- Field surveys, public polls.
- Use of risk analysis methodologies.

Estimated or predicted values of air and water quality noise etc. are wherever possible compared with standards or criteria laid down in the country or elsewhere in order to help in their evaluation.

## EIA Report contents

1. Data on Existing Environmental setting.
2. Existing socioeconomic data.
3. The proposed project and its infrastructure
4. Pollution aspects and proposed mitigative measures.
5. Hazard and disaster management plan.
6. Environmental management plan

The biggest advantage of carrying out an EIA study is that it makes one go through the whole thought process before a project is implemented. This often helps visualize feasible alternatives to a given scheme to make it more environment friendly.

## Are these indications of Global Warming?

- Delhi records the highest maximum temperature (41.4°) in the past 100 years in the first week of April, 1999.
- Unusually long day spell and high temperatures followed by numerous forest fires in Himachal Pradesh and Uttar Pradesh.
- Dry spell causing water scarcity in Manipur, Tripura.
- Unprecedented floods last year followed by normally high temperatures this year in Bangladesh.
- Severe heat wave and several deaths reported by April end in Orissa.
- Severe heat conditions and water sources drying up as early as March 1 in Kutch, Gujarat.
- Hundreds of people died all over India in severe heat wave this year. ■■



# WORLD OF SPORTS

- Cricket • Lawn Tennis • Football
- Badminton • Volleyball • Table Tennis • Hockey • Boxing • Wrestling
- Basketball • Snooker/Billiards
- Golf • Chess • Athletics

As the millennium has drawn to a close, it is time to ponder over the highs and the lows of sports these hundred years. The changes that have taken place in the nature of sports have brought about some positive and negative results. The greatest change in the nature of sports without an iota of doubt has been brought about by the commercialisation of sports. With it, has come about many positive and negative changes. The influx of money in terms of prize money, sponsorships, T.V. coverage etc. has meant that sports has become a lucrative business. The commercialisation has been further fuelled by the globalisation of sports. This expansion of sports to hitherto non-sporting nations has been a redeeming feature of this century. The sportsmen and organisers have got better returns for their efforts, which has consequently resulted in sports becoming more competitive. It has also led to better organisation of sports federations and improved infrastructure facilities. While these indicate a positive trend, there is also a darker side to it. The hydra-headed entity called corruption has permeated the field of sports. There have been numerous scandals, reports of match fixing, bribery, drug abuse etc. These have tarnished the image of sports and gone against the very aims and objectives of sports. Sports play and sportsman spirit are fast becoming a thing of the past. As we enter the next millennium, tougher preventive and promotive measures have to be taken to improve sports in both qualitative and quantitative terms.



## CRICKET



The history of cricket dates back to the 13th century. In the 16th century, the sports was well entrenched in England. In India, the British introduced this sport. The first cricket club in India was opened in Calcutta. Ranjeet Singh was the foremost cricketer of the yesteryears. In 1877, the first cricket test match was played in Melbourne between England and Australia. This ground also holds the distinction of holding the first one-day international in 1971. The first world cup of cricket was organised in 1975 in England. India, under Kapil Dev won the third Prudential World Cup in 1983. It marked the zenith of Indian cricket. So far

seven world cups have taken place, the last being the one held in England in 1999. The 2003 world cup will be held in South Africa, where some matches will also be played in Kenya and Zimbabwe. The 2007 world cup will be held in West Indies. Here too, some matches will be played in Bermuda (Canada) and the U.S.A. The international cricket conference (ICC) is the foremost governing body of this sport. Its headquarters is in London (England).

**Sports profile :** 11 players of each team play it. The length of the pitch is 20.11 metres or 22 yards. The circumference of the ball is between 20.79 to 22.8 cm. The weight of the cricket ball is between 155 to 168 gram. The length, breadth and weight of the cricket bat is approximately 96.5 cm, 22.9 cm, and 2 pounds.

**Terminology :** swing, cut, overdrive, pull, hook, chinaman, short pitch, googly, wide, throw, mid off, mid on, long leg, short leg, fine leg, bowler's arm, short leg, mid wicket, third man, slip, popping, thirty yard circle, crease, flight, bouncer, round the wicket, over the wicket, leg before wicket, leg out, low on, protection guard, abdominal guard, Back, Retired hurt, Third Umpire, Opener, first down, Line and Length, seam, leg cutter, off break, spin, bowler, batsman, wicket keeper, helmet, etc.

extra, no ball, chucker, dead ball, Beamer, Reverse swing, full toss, bowled, hand's the ball, hit wicket, played on, Run out, Caught behind, Catch, Over throw, shooter, innings, Short run, Innings Third Umpire, Gloves, runner etc.

**Cups and trophies :** World Cup, Titan Cup, Triangular Series, Singer Cup, Sahara Cup, Natwest Trophy, Asia Cup, ICC Trophy, Benson and Hedges Cup, Ranji Trophy, Duleep trophy, Irani Trophy, Deodhar Trophy, Rohinton Baria Trophy, Cooch Bihar Trophy, Sheesh Mahal Trophy, Arlem Trophy, Wills Cup, Vinoo manded Trophy, Vijay Merchant Trophy, Rani Jhansi Trophy.

**Former greats :** Sunil Gavaskar, Sir Don Bradman, Ian Chappel, Greg Chappel, Ian Botham, Kapil Dev, Richard Hadlee, Lata Amarnath, Vinoo Mankad, Vijay Hazare, Michael Holding, Imran Khan, Duleep Mendis, Clive Lloyd, Vivian Richards, Gordon Greenidge, Desmond Haynes, Javed Maundad, Allan Border, Martin Crowe, Sandeep Patil, Srikanth, Dilip Vengsarkar, Barry Richards, Abdul Qadir, Dennis Lillee, Jeff Thomson, Jim Laker, Underwood, Fred Titmus etc.

**Current Players :** Hansi Cronje, Allan Donald, Shaun Pollock, Jonty Rhodes, Lance Klusner (South Africa) Steve Waugh, Mark Waugh, Glen McGrath, Shane Warne (Australia) Wasim Akram, Shoaib Akhtar, Saqlain Mushtaq, Inzamam-ul-haq (Pakistan) Sachin Tendulkar, Sourabh Ganguly, Javagal Srinath, Anil Kumble, Rahul Dravid, Ajay Jadhava, Venkatesh Prasad (India) Arvinda-de-silva, Arjuna Ranatunga, Sanath Jayasuriya, Romesh Kaluwitharana, Maravan Attapattu, Muralidharan, Chaminda Vasas (Sri Lanka) Courtney Walsh, Brian Lara, Curtley Ambrose, Shivnarain Chanderpaul, Richardo Powell, Jimmy Adams (West Indies), Chris Cairns, Fleming, Dion Nash, Daniel Vettori (New Zealand), Alistair Campbell, Grant Flower, Neil Johnson, Craig McMillan (Zimbabwe).

## Main events of 1999

**India - New Zealand one day series :** New Zealand beat India by 70 runs in the fifth and final one day match played in Christchurch to level the

series 2-2. New Zealand made 302 runs in their stipulated 50 overs, thanks to a hurricane knock of 115 runs by Chris Cairns. He made the fifth fastest century in one-day cricket off only 75 balls. Shahid Afridi of Pakistan still holds the record of the fastest one day hundred which he made at Nairobi against Sri Lanka off only 37 balls



Sachin Tendulkar

**India-New Zealand Test Series :** Despite centuries in both the innings by Rahul Dravid, India failed to force a win in the deciding third test at Hamilton. New Zealand thus emerged victorious in the series 1-0 as they had won the second test, the first being washed out due to rain.

**South Africa-West Indies Test Series :** The South Africans handed a 5-0 drubbing to the West Indies by winning all the five test matches played between the two nations. In the final test match the protease won by a margin of 351 runs.

**Wills Trophy :** In the final played at Eden Gardens (Calcutta), Madhya Pradesh defeated West Bengal by 32 runs to win the 1999 Wills Cup trophy. Madhya Pradesh was helped by solid knocks of 57 and 60 from Amay Khurasia and Devendra Bundela respectively. In reply to the Madhya Pradesh total of 225, West Bengal folded up for 193 runs.

**C. K. Naidu Trophy :** Delhi beat Chandigarh by 71 runs to win the under 19 C. K. Naidu Trophy played in Jammu in January 1999.

**Vizy Trophy :** South zone beat east zone to win the Vizy trophy played in Varanasi on the 9th of February '99. In reply to east zone's total of 175 and 216 runs in both the innings, south zone made 243 and 149 for 6 in their respective innings.

**Asian Cricket Test Championship :** In the



### **Anil Kumble repeats history**

The second test match between India and Pakistan played in New Delhi saw the best of Anil Kumble. He took all the ten Pakistani wickets conceding 74 runs in a devastating spell of 26.3 overs. He thus equalled Jim Laker's record haul of ten wickets, which the Englishman had taken in Manchester in 1956 against Australia.

finals played at Dhakha, Pakistan beat Sri Lanka comprehensively by an innings and 173 runs to become the Asian test champions. In this competition, Wasim Akram, the Pakistani Captain, secured two hatricks in consecutive matches to make a world record. He inevitably was named 'man of the series'.

**Pepsi cup triangular series :** In the finals of this tournament played at Bangalore, Pakistan beat India by 123 runs to win the Pepsi cup triangular trophy. The Pakistanis, batting first, put up a mammoth total of 291 runs. The Indians meekly folded up for 168 runs in 42.1 overs. Azhar Mahmood with his haul of 5 wickets was named 'man of the match'. Saurav Ganguly received a fiat sienna car for being named as 'man of the series'.

**Ranji Trophy :** Defending champions Karnataka were once again winners of the Ranji trophy of the year 1999. In the finals played in Bangalore, they defeated Madhya Pradesh by 95 runs.

**West Indies-Australia one day series :** By winning the last of the 7 match series played at Bridgetown, West Indies levelled the series 3-3. The fifth match of the series was declared a tie because of intrusion by spectators in the decisive over.

**Coca-Cola Cup :** Pakistan beat their arch rivals India by 8 wickets at Shanghai to lift the

Coca-Cola triangular trophy. The Indian batsmen put up a pathetic batting display scoring a paltry 145 runs in 45 overs. The Pakistan overtook its target losing only two wickets. Wasim Akram was declared 'man of the match' and Venkatesh Prasad the 'man of the series'.

**World Legends Cup :** In the finals played at Kathmandu, India beat a World XI by four wickets to win the world Legends cup.

**Aiwa Cup :** A scintillating knock of 95 not out by Sri Lankan wicket keeper Romesh Kaluwitharana propelled Sri Lanka to a more boosting victory over world cup champions Australia by 8 wickets. For his efforts, Romesh Kaluwitharana was named 'man of the match'.

**Singapore International Challenge Cup** In the finals played at Singapore, West Indies batting sensation Richardo Powell hit 124 runs to help his team beat India by 4 wickets. India had earlier made a respectable 254 runs in their allotted 50 overs, thanks to a century by Rahul Dravid. The West Indians achieved this target in 47.4 overs losing 6 wickets in the process. Richardo Powell was named 'man of the match'.

**D.M.C Cricket Series :** India beat West Indies 2-1 in the three match, D.M.C Cricket Series. In the last match Rahul Dravid was named 'man of the match'. Saurav Ganguly was named 'man of the series'.

**D.M.C. Cup :** Pakistan beat West Indies 3-0 to win the D.M.C. Cup. The West Indies rarely put up a fight and lost all their three matches.

**Australia-Pakistan Test Series :** Australia thrashed Pakistan by an innings and 20 runs at Perth to wrap up the series 3-0. The match was over in the 3rd day which showed the dominance of the Aussies. Justin Langer was declared 'man of the series'.

**India-New Zealand one day series :** India beat New Zealand by 7 wickets at Delhi to clinch the series 3-2. Saurav Ganguly was declared 'man of the series' for making 301 runs and taking 4 wickets.

**Duteep Trophy :** On the basis of their first innings lead north zone beat west zone to bag the

## WORLD CUP CRICKET

In the finals played at Lords on the 20th June, Australia beat Pakistan by 8 wickets to win the Seventh World cup. Batting first, Pakistan could muster a meagre 132 runs in 39 overs. In reply Australia achieved this less than modest target in only 20.1 overs.

Shane Warne with figures of 4 for 33 was named 'man of the match' in the finals. 'The man of the series' award was grabbed by Lance Klusener of South Africa.

Steve Waugh, the Australian Captain received 3 lakh dollars as prize money.

Shane Warne (Australia) and Geoff Allott (New Zealand) took 20 wickets each to create a new world record and become the highest wicket takers in the World Cup. The previous record of 18 wickets stood in the name of Roger Binny (1983), Craig McDermott (1987) and Wasim Akram (1992).

Lance Klusener took 17 wickets and made 281 runs in 8 matches with a staggering average of 140.00.

Steve Waugh equalled Javed Miandad's record of appearing in 33 World Cup Matches.

The match between Australia and South Africa ended in a tie. This was only the first time such a thing had happened in World Cup history.

Saqibain Mushtaq secured a hatrick in the game against Zimbabwe and became only the second player after Chetan Sharma (India) to achieve

sep Trophy. They won this trophy for the 14th time.

**India-Australia test series :** After crushing Pakistan 3-0, the Aussies handed a similar treatment to the Indians by beating them in all the 3 matches. 'Sachin Tendulkar' was chosen the 'man of the series'



this distinction in a World Cup

- Rahul Dravid and Saeed Anwar became the only players to score two centuries in a World Cup
- Azharuddin equalled Desmond Haynes in Scoring 57 half centuries
- India's score of 373 for 6 against Sri Lanka at Taunton was the second highest score in a World Cup. The record is held by Sri Lanka who notched up 399 for 5 at Cardiff against Kenya in the 1996 World Cup
- The stand between Saurav Ganguly and Rahul Dravid against

Sri Lanka of 318 runs is a World record

- A new rule called the 'Duckworth-Lewis rule' was adopted for rain affected matches in the World Cup
- The twelve participating countries were divided into 2 groups. Pool 'A' consisted of England, South Africa, Zimbabwe, Sri Lanka, India and Kenya. Pool 'B' consisted of Australia, Pakistan, West Indies, Bangladesh, New Zealand and Scotland.
- A total of 42 matches were played in 21 centres in England, Ireland, Holland and Scotland
- The ICC Cricket World Cup Trophy was designed by Paul Marsden
- The 2003 World Cup will be held in South Africa and the 2007 World Cup will be held in the West Indies

established the first tennis club called the 'Lymington Club'. The game was earlier known by the name 'Pallota' and 'Lawn Racket'. It was in the 15th century that it began to be called by its present name. This game is played on two types of surfaces namely grass court and hardcourt. The highest governing body of lawn tennis is the International Tennis Federation, which was established in 1913. Earlier, the game was played by professionals and non-professionals but in 1955 this bifurcation was removed. In the year 1900, Davis cup was held

## LAWN TENNIS

This sport came to be known as tennis in the 1400, though the game was played earlier. England played a decisive role in the development of this sport. Harry Jem, an Englishman





**Sports profile :** Diameter of the ball is 2.5 to 2.58 inch, the colour of the ball is white or yellow, and its weight is between 56.7 to 58.5 gram. The maximum

**Seed No. 1 Andrei Agassi** length of the racket is 32 inch and maximum breadth 12.5 inch. The court measures 78 feet by 27 feet. The height of the net is 3 feet 6 inches. The game is played as singles, doubles and mixed doubles.

**Terminology :** deuce, volley, service, back hand, stroke, forehand, singles, doubles, racket, net ball, service break, straight set, service line, return, side umpire, baseline, centre line, grass court, hard court, clay court, fault, grip, ground stroke, referee, linesman, in, out, match point, tie break, set point, half volley, smash, pace, top spin,



*Lindsay Davenport*

wrong foot, love, seed, break point, ch ends, over head, lob, passing shot, kill ei

**Cups and Trophies :** Grand (Wimbledon, French open, Australian open), Davis cup, Whitman cup, Federal Hopman cup, ATP Championship, Ever (ginia slims championship, Italian open, C open, Japan open, Indian satellite of Rajendra Prasad cup, German open, WT/ pionship.

**Former greats :** Bjorn Borg, Arthur John Mcnroe, Jimmy Connors, Rama Krishnan, Ramesh Krishnan, Vijay Amritraj, Amritraj, Ivan Lendl, Stefan Edberg, Boris (Men), Martina Navratilova, Chris Evert Lloyd, Jean King, Margaret Court Smith, Gabriela Stelci Graf.

**Current Players :** Leander Paes, Bhupathi, Zeeshan Ali, S. Vasudevan, Natekar (India), Michael Chang, Pete Andre Agassi, Lindsay Davenport, Venus Williams, Jim Courier (U.S.A.), C Martinez, Arantxa Sanchez Ricario, Bruguera, Carlos Moya, Alex Croetza (Mark Rosset, Martina Hingis (Switzerland Novotna, Peter Korda (Czech republic), Rafter, Mark Philippoussis, Mark Woodford Woodbridge (Australia), Richard Krichland), Mary Pierce, Sedrick Pioline (France Montilla, Thomas Enquist, Jonnason (Sweden), Marcelo Rios (Chile), Iva Majoli, Ivanosevich, (Croatia), Gustava Kuerten (Tim Henmann (Britain), Yevgeny Kafelnikov, Kournikova (Russia) Thomas Muster (Aust

## Main events of 1999

**Australian open tennis champion '99 :** On January 30, 1999 in Melbourne (Australia), Yevgeny Kafelnikov of Russia beat Thomas Enquist (Sweden) 4-6, 6-0, 6-3, 7-6 to lift the crown of the Australian open. It was only the second grand slam title of Kafelnikov. In the women's final, Martina Hingis of Switzerland beat Sandrine Testu of France 6-2, 6-3 to lift the women's crown for the third consecutive year.

Moresamo had defeated world No. 1 Lindsay Davenport to reach the final. Martina Hingis became richer by 6,79,000 Australian dollars. In the men's doubles, Jonaru Borkman (Sweden) teamed up the Patrick Rafter (Australia) to beat the Indian duo of Leander Paes and Mahesh Bhupathi 6-3, 4-6, 6-4, 6-7 (10-12), 6-4. It was the first grand slam tournament when an Indian pair had been billed top ranking. In the women's doubles, Martina Hingis and Anna Kournikova (Russia) beat Natasha Zvereva and Lindsay Davenport 7-5, 6-3, to lift the women's doubles crown. The mixed doubles crown was won by Marian de Sward and Davis Adams who beat Serena Williams and Max Mirnaye 6-4, 4-6, 7-6.

#### French open tennis championship '99 :

The French open tennis championship was held in may-june'99 in Paris (France). In the men's final played on the 6th of June, Andre Agassi (U.S.A) beat Andrei Medvedev 1-6, 2-6, 6-4, 6-3, 6-4 to lift the men's crown. With this win, Andre Agassi became only the fifth player to win all the four grand slam championships. In the women's singles final played on 5th June, Steffi Graf (Germany) beat Martina Hingis 4-6, 7-5, 6-2 to lift the crown for the sixth time. The French open once again eluded Martina Hingis in her effort to become the winner of all grand slams titles. For Indian tennis, this tournament created history, as for the first time an Indian duo comprising Leander Paes and Mahesh Bhupathi beat Goran Ivanasevich (Croatia) and Jeff Torango (U.S.A) to lift the doubles crown for the first time. The Indians beat their rivals by a score of 6-2, 7-5. They became richer by 2,76,660 American dollars and also became the top seed according to ATP rankings. In the women's doubles, the William sisters Serena and Venus beat Martina Hingis and Anna Kournikova 6-3, 6-7 (2-7), 8-6 to lift the women's doubles crown.

**Wimbledon tennis championship '99 :** On the 4th of July, Pete Sampras (U.S.A) beat compatriot and fellow American Andre Agassi 6-3, 6-4, 7-5 to win the men's Singles crown for the sixth time. Sampras equalled Roy Emerson's record of

winning 12 grand slam titles. He is only one short of equalling the record of W.C. Reneshaw who had won the title for a record 7 times. In the women's singles final, Lindsay Davenport (U.S.A) beat Steffi Graf in straight sets 6-4, 7-5 to lift the

women's crown. Davenport was again in the limelight as she teamed with fellow American Conna Marrariu to beat Marianne de Sward (S Africa) and Alena Tatartova (Ukraine) 6-4, 6-4 to lift the women's doubles crown as well. The Indian doubles pair of Mahesh Bhupathi and Leander Paes, fresh from their win in the French open, beat Paul Harhuis (Holland) and Jerid Palmer (U.S.A) to lift the doubles crown. It was for the first time that an Indian had won two titles in a grand slam event.

#### American open tennis championship '99 :

On September 13, Andre Agassi (U.S.A) beat his fellow countryman Todd Martin 6-4, 6-7, 6-3, 6-2 to lift the men's singles crown in the U.S open tennis championship. Agassi received 7.5 lakh dollars as prize money. In the women's singles final played a day earlier Serena Williams (U.S.A) had beaten Martina Hingis 6-3, 7-6 to lift the women's singles crown. She too received 7.5 lakh dollars as prize money. In the men's doubles final, Sebastian Loreau (Canada) and Alex O'Brien (U.S.A) beat the Indian pair of Leander Paes and Mahesh Bhupathi 7-6, 6-4 to lift the men's doubles crown. In the women's doubles final, the William sisters Serena and Venus beat Chanda Rubin (U.S.A) and Cedrin Testud (France) 4-6, 6-1, 6-4 to bag the women's doubles crown.



Mahesh Bhupathi and Leander Paes



## Tennis players of the century



Steffi Graf

Rod Laver and Steffi Graf were voted the best men and women tennis players of this century by the Associated press. Dubbed the 'Rocket' Laver is the only double grand slam winner in history. He won the same in 1962

and 1969. The top ten players of this century according to the associated press are as follows

Men	Women
1. Rod Laver	1. Steffi Graf
2. Pete Sampras	2. Martina Navratilova
3. Bill Tilden	3. Margret Smith Court
4. Bjorn Borg	4. Billie Jean King
5. Don Budge	5. Chns Evert
6. Lew Hoad	6. Suzanne Lenglen
7. John McEnoe	7. Helen Wills moody
8. Roy Emerson	8. Maureen Connolly
9. Ken Rosewall	9. Monica Seles
10. Jack Kramer	10. Martina Hingis

The Indians drew heart from the fact that Mahesh Bhupathi and I Sugiyama (Japan) beat Donald Johnson (U S A) and Kimberly po (U S A) 6-2, 6-1 to lift the mixed doubles crown

**Sidney International tournament :** On Jan 16, 1999 Lindsay Davenport beat Martina Hingis to win the sidney International tournament played in Sidney (Australia)

**Colonial classic tennis :** In Melbourne. Thomas Enquist beat local hero mark philipousis to win the colonial classic tennis championship held on the 16th of January 1999

**Hopman Cup :** On the 9th of January '99, Australia beat Sweden 2-0 to win the Hopman cup in Perth (Australia). It is the team championship of women equivalent to the Davis cup for men.

**Tasmania International Tennis :** Chanda Rubin of U.S.A beat Rita Grede of Italy to win the

Tasmania International tennis championship held in Hobart on 16th January '99.

**Adelaide hard court tennis championship :** Thomas Enquist beat Leyton Hewitt and Patty Schnieder beat Mary Pierce (France) to win the men's and women's titles respectively.

**Super power challenge cup tennis championship :** In the finals, Steffi Graf withdrew from the match due to an injury and Venus Williams was declared the winner of this tournament.

**Delhi women's open tennis :** Shrivastava Dhawan beat second seeded Kanishma Patel 6-3, 6-1 to win the Delhi women's open tennis title. Later she teamed up the Kanishma Patel to beat Shyamli Thakur and Yamini Shekhari to win the doubles crown.

**I.G.A super thrift classic tennis championship :** Venus Williams beat Amanda Coetzer (S.Africa) 6-4, 6-0 to bag the title. The match was played in Oklohama City.

**Gaz de France open :** Serena Williams beat Emilie Marsemo 6-2, 3-6, 7-6 (7-4) to win the Gaz de France open title held in Paris.

**Saint Jude indoor tennis tournament :** Toney Hass (Germany) Beat Jim Courier 6-4, 6-3 to win the saint jude indoor tennis tournament played in Memphis (Tennessee).

**Copenhagen open tennis championship :** In the finals played on 7th of March, Magnus Gustafson (Sweden) beat Fabrice Santoro (France) 6-4, 6-1 to win the title.

**Franklin Templeton classic tennis tournament :** John Michael Gambell of U.S.A beat Australian Lytton Hewitt 7-6, 4-6, 6-4 to win the Franklin templeton classic tennis tournament

**Lipton Tennis championship :** On 27 march '99 in Bicken (U.S.A) seventh seed Richard Krajcek of Holland beat unseeded Frenchman Sebastian Gustran to win the men's title. In the women's singles final venus Williams beat her sister Serena to win the women's title.

**National Grass court tennis championship :** In the finals played in Calcutta Manisha Malhotra (Maharashtra) and Marks Hilper

(Germany) won the women's and men's title respectively.

**Evert cup tennis :** Serena Williams beat fifth seeded steffi graf to win the Evert cup tennis tournament. The cup has been named after the great player of Yester Years, Chris Evert Lloyd.

**Davis cup (Asia- Oceania group) :** India beat china 5-0 to move ahead in the next round of their group. The credit for the Indian victory was shared by Leander Paes, Mahesh Bhupathi and Fazluddin.

**Gold Flake open tennis :** In the men's singles final Byron Black beat Renner Schuttler of Germany 6-4, 1-6, 6-3 to win the men's singles title. In the doubles final Mahesh Bhupathi and Leander Paes beat Byron Black and Nevel good-will to bag the doubles crown.

**Betty Barklery tennis championship :** In the finals held in Hamburg, Venus Williams beat Mary pierce of France to win her first clay court title of her career.

**Servo Indian Oil ATP challenger tournament :** Leander Paes beat his compatriot Mahesh Bhupathi 7-5, 6-4 to win the servo Indian oil ATP challenger tournament

**Italian open :** In the finals played in Rome on 17th may '99 Gustavo Kuerten (Brazil) beat Patrick Rafter 6-4, 7-5, 7-6 (8-6) to bag the men's singles title. In the women's finals Venus Williams beat Mary Pierce of France in straight sets 6-4, 6-2 to bag the women's singles title.

**Polish open Tennis :** Conchita Martinez (Spain) beat Karina Hubsudova (Slovakia) 6-1, 6-1 to win the polish open title

**Hall of frame Tennis :** In the finals played in Newport on the 12th of July, Chris woodcruft (U.S.A) beat Kenneth Carlsen (Denmark) to win the hall of fame tennis championship. The doubles crown in this competition was won by Leander Paes and his new partner Wayne Arthurs (Australia).

**Canadian Open Tennis :** Thomas Johanson of Sweden beat Russian Yevgeny Kafelnikov 1-6, 6-3, 6-3 to win the Canadian open tennis championship.

**ATP championship :** Peter Sampras beat Patrick Rafter 7-6, 9-7, 6-3 to win the ATP championship.

**Asia Cup Tennis Championship :** Uzbekistan beat Japan 2-0 to win this championship. In a beat Thailand 2-1 to bag the third place

**ATP tour world doubles championship :** In the finals played in Hartford on the 22nd of November, Sebastien Loreau and Alex O'Brien beat the Indian duo of Leander Paes and Mahesh Bhupathi 6-3, 6-2, 6-2 to win this coveted title

**WTA tour Championshi :** In Philadelphia second seeded Lindsay Devenport beat top seed Martina Hingis 6-3, 6-4 to bag the WTA tour championship title

**Paris Open :** Andre Agasi beat Morat Safin to become the first player to win both the Paris Open and the French Open titles



## FOOTBALL

The pioneer of football was Italy. However, the first football club - 'the Sheffield football club' was founded in 1857 in England. Like cricket, the Britishers were instrumental in bringing this sport to India. The first football club of India was 'The Dalhousie Club'. The highest governing body of football is 'The federation international de football Association' better known by its acronym 'FIFA'. Every four years this organisation organises the 'World Cup'. The first world cup was organised in Uruguay in 1930. The last world cup was held in June 1998 in France. 32 teams took part in this mega event and the host nation beat Brazil to lift the World Cup.

**Sports profile :** Each team has 11 players. The circumference of the





football is between 68 to 71 c.m. The weight of the ball is 396 to 453 grams. The length of the field is between 91 to 120 metre and the breadth is between 45 to 91 metre.

**Terminology :** Mid field, centre pass, back pass, goal keeper, forward, direct kick, striker, indirect kick, corner, free kick, dribble, penalty kick, extra time, scissor kick, foul, goal, referee, linesman, sweeper, back, throw in, volley, touch line, send off, net winger, tie breaker, Flag, fist, first half, second half, sudden death, winger. Tackle, far post, sliding tackle, off side, hatrick, handball, chip, lob, fair charge, booking, cross, kick off, goal kick, marking, through ball, Abbey etc.

**Cups and trophies:** FIFA cup (World Cup), U.F.A Cup, F.A. Cup, European Championship, Winners Cup, Presidents cup, African nations cup, Kings cup, Merdeka cup, Asian cup, Kankecafe gold cup, Santosh trophy (National championship), Jawahar Lal Nehru International gold cup, Rajiv Gandhi International cup, Durand cup, Rovers cup, I.F.A Shield, DCM trophy, Federation cup, Subroto cup, B.C. Roy trophy, Mir Iqbal Hussain trophy, Stafford cup, Caesars cup, Vithal cup, Baradoloi cup, Nagaji trophy, Airlines gold cup, Bandoakar gold cup, Ashutosh trophy, Begum Hazrat Mahal trophy.

**Former greats :** Pele, Deigo Maradona, Subroto Mukherjee, Garry Linekar, Paulo Rossi, C.Maldini, Roberto Baggio, Rudd Gullit.

**Current players :** I.M. Vijayan, Shishir Ghosh, Akil Ansari, Ranjan Dey, K.T. Ranjeet, Baichung Bhutia, Amit Das, Abdul Latif, E. Emeka, Cheema Okeni, Khalid Jameer, Arvind Kumar, Sushant Majumdar, Raman Vijayan, A.S.Firoz, Mohd Safiq (India), Angelo Perroji, Pavolo Maldeni, Demeitre Alvaltini, Deno Baggio, Deigo Fueger (Italy), David Semen, Ian Barket, Garry Neveli, Tony adams, G.Southgate, R.Flower, N.Morton (England), Cannagea, Valistuta (Argentina),

Marrco Von Bastien, Ronald Koehman (Holland), Julio Caesen, Romario, Dunga, Babeto, Ronaldo (Brazil), Oliver Veirhoff, Thomas Helmar, Rudy Voeller, G. Kilnsen, Lothar Mathaus, (Germany), Tony Polstar, Peter Steigler, Jetterberg (Sweden), Devor Succar (Croatia), Lawrence Blank, Zinadine Zidane, Marshall de Jeli (France).

## Main events of 1999

**Inter state football championship :** On the 29th of February '99 in Nimbaheda (Rajasthan), Indian Railways defeated Bengal 1-0 to win the inter state football championship.

**National football League :** Salgaonkar sports club, Goa beat Mohan Bagan to win the national football league. In the finals played in Calcutta former champions Mohan Bagan were overwhelmed by the goan club.

**Santosh Trophy :** The finals of the Santosh trophy were played in Chennai on the 4th of April '99. In the finals Bengal beat Goa 5-0 to win the coveted trophy. For Bengal, Baichung Bhutia, Deependu Biswas, Vasudev Mandal, Raman Vijayan and Carlton Chapman each scored a goal.

**Youth World Cup :** Spain beat Japan 4-0 to win the youth world cup. For Spain, Pavlov Gonzales scored two goals. The final was played on the 25th of April '99 in Lagos.

**SAARC football tournament :** India helped by goals from star striker Baichung Bhutia and Bruno I tinho beat Bangladesh 2-0 to win the saarc football tournament played on the 25th of April in Mudgaon. Baichung Bhutia was named the 'man of the match'.

**Copa America cup :** In the finals played on the 19th of July in Asuncion, Brazil beat Uruguay 3-0 to win the oldest cup in International football. For Brazil Rivaldo struck twice while Ronaldo nettled the third.

**Women's World cup football tournament :** United states of America beat china 5-4 in a penalty shoot out to become the champions of the women's world cup tournament played on the 11th of July at Pasadena, California, U.S.A had

earlier won the inaugural world cup held in china in 1996.

**Confederation Cup :** On the 4th August '99 Mexico beat Brazil 4-3 to win the confederation cup played in Mexico city. Brazil was the defending champion but lost to a spirited Mexico.

**Durand cup :** Golkeeper Juye Sidhi effected a fine save off the final spot kick to help salgaoncar club edge past East Bengal 3-2 in the tie-breaker of the Durand cup final played on the 4th of Dec '99.

**21st Governor's Gold Cup :** Army XI beat Kerala Police 3-1 to win the government's gold cup played in Gangtok on the 6th of November'99.

**Super Cup :** Salgaonkar Club of Goa beat their arch rivals Mohan Bagan through a golden goal by Alvaro de Cunha to win this cup for the second consecutive year.



## BADMINTON

It is believed that the sport of badminton originated in England in the 18th century. Some, however believe that the sport originated in India. The sport was played by British officers when they ruled in India. The name 'badminton' is derived from the city of 'badminton' founded by the duke of Beaufort in 1873, where an exhibition match was organised for the first time.

**Sports profile :** The sport is played by 2 players in a singles match and 4 players in a doubles match. The size of the court is 13.41' x 6.1m (44'20 ft.). In a singles match, the size of the court is reduced by 3 feet. The height of the net is 1.5 m (5 ft) and the weight of the shuttle is between 4.75 to 5.51 gr. (73 to 85 grains). The shuttle is made from the feather of birds and has 6 feathers. The weight of the racket is between 5 to 140 grams.

**Terminology :** Referee, linesman, let drop, short service, skid, Innings, net shot, low service, high service, lift, pen handle push, setting, service break, match point, set point, smash.

**Cups and Trophies :** Chaddha cup (national women's team championship), Vikas

lopiwala challenge cup (National men's singles), Olympian challenger cup (National women singles), Amrit Diwan cup, Aggarwal cup, S.R. Ruia cup, Sofia kitkara cup, Hirajal cup, Thomas cup (world men), Uber cup (world women), All England championship, Sudirman cup, Yonex cup, Abdul Rahman cup, European cup.

**Former greats :** Prakash Padukone, Syed Modi, Amrit Diwan etc.

**Current players :** Pulela Gopichand, Archana Papat, Dipankar Bhattacharya, Manjusha Kanwar, Madhumita Bisht, Archana Deodhar, Vijaydeep Singh, Vinod Kumar (India), Luo Yigang, Gong Chi Chao, Yi Chao Ying, Sun Jun, Ye Zhao Ying, Bong Ziyong, Gu Jun, Liu Yong (China), Peter Rasmussen, Peter Gede Christenson (Denmark), J.Suprianto, Susi Susanti, Harianto Abri, Sindana Hartono, Burdianto Sigit, Sandra Vijay, Harmawan Susanto, Ricki subagia (Indonesia), Li Sun Duke (Korea) etc.

## Main events of 1999

**World Grand Prix Badminton :** In the men's singles finals played in Bender Ser Begwan (Brunei), Sun Jun of China beat top seed Peter Gede Christenson of Denmark 15-11, 15-8 to win the coveted title. Sun Jun had also won the all England Championship in 1998. In the women's singles finals Zhang Ning of China beat Dayi Yun 11-8, 11-7 to win the singles title. The women's doubles title was won by the Chinese pair of Geisfeand Gu Jun who beat the Danish Pair. In the men's doubles, the Indonesian pair of Danny Canton and Budi Arianto Anthones beat fellow countrymen Gune Wan and Haryarto Anthones 15-11, 5-15, 15-11 to win the title.

**63rd Senior National Badminton championship :** In the finals played in Delhi Pulela Gopichand and Archana Papat won the



P. Gopichand

men's and women's singles titles respectively. For Gopichand, it was his fourth national title while Apama Popat won it for the second time in her career. Gopichand beat Srikant Bakshi 15-3, 15-4 while Apama Popat beat V.Laxmi 11-3, 11-4 to show their overall domination. In the women's doubles Manjusha Kanwar and Archana Deodhar beat Apama Popat and Manju 15-4, 15-2 to win the title.

**Yonnex Japan Open :** Peter Gede Christen beat Sun Jun and Zhe Yao Ying beat Gong Zhi Kao to win the men's and women's singles titles respectively. The matches were played in Tokyo on the 11th of April '99

**BPL open badminton :** In the finals played in Bangalore on the 11th of August 1999, Pulela Gopichand and Archana Popat again dominated the proceedings to bag the men and women's titles respectively.

**Scottish open badminton championship :** Pulela Gopichand beat his fellow countryman Sidharth Jain 15-8, 15-10 to win the title. The women's title was bagged by Aida Takako of Japan.

**4 Indian among top 100 badminton players :** Among the current top 100 badminton players, Pulela Gopichand (42), Abhir Shyam Gupta (61), Nikhil Kantkar (70), and Sachin Ratti (100) find places. In the women's section Apama Popat (21), Neelima Chaudhary (70), Manjusha Kanwar (95) and B.R. Meenakshi (95) find themselves in august rankings

## VOLLEYBALL

The game owes its origin to William J. Morgan, an American, who introduced this sport to the world in 1895. Earlier, this sport was considered part of basketball but later it carved out its own identity. The highest governing body of this sport is the international volleyball federation, which was established in 1948. The first world cup of volleyball was organised in 1949

**Sports profile :** The court of volleyball is 18m x 9m in area. The net is 9.50 m long and 1 m

wide. Its height is 2.43 m for men and 2.24m for women. The height of the side posts is 2.55m. The circumference of the ball is between 65 to 67cm. The weight of the ball is between 260 to 280 grams. The internal pressure of the ball is between 0.40 to 0.45 kg/cm. Each team has a total of 6 players.

**Terminology :** Hook serve, Tennis serve, Referee, linesman, Double fault, Fore arm pass, Set up, Block, Aerial Smash, Rotation, Double hit, Volley pass, Dig pass, Switch, overlapping, Booster, Love, Dig, Net Fault, Net ball, Floater, Service, Power serve.

**Cups and trophies :** Federation cup, India cup, Shivanti gold cup, Shiva Subramaniam cup (National women Championship), V.C.C. cup, Mannarkat M.M Joseph trophy (National Men's championship), and Poomima trophy.

**Former greats :** Udai Pawar, K.Vijay Bhaskaran.

**Current players :** Abdul Vashist, Sukhpal Singh, Daler Singh, Ashish Aroja, Ravikant Reddy

## MAIN EVENTS OF 1999

**4th International Volley ball tournament :** In Dubai, on the 9th of January, Urkarine beat 3 times champions India 17-16, 15-9, 10-15, 15-3 to win the 4th Rashid International volleyball



tournament. Ironically Ukraine were participating in the tournament for the first time.

**Asian Senior Volley Ball Championship :** China emerged winners of the Asian senior volleyball championship held in Tehran on the 9th of September. Australia took the second spot. In this way china has qualified for the world volleyball tournament.



## TABLE TENNIS

This sport was played in the second half of the 19th century in England. During this period it was known by the name 'Gausima' or 'whip waff'. Rubber bats replaced the earlier used wooden bats in the third decade of the 20th century. Since then it has become popular all over the world. The International table tennis Association was set up in 1926 and the first world championship was held in 1927.

**Sports profile :** It is played by two players in a single match and by four players in a doubles match. The size of the table is 2.74m x 1.52m. The table is 76 cm high. The diameter of the ball is between 37.2 to 38.2 mm and its weight is between 2.4 to 2.53 gram (0.88 ounce). The colour of the ball is either white or yellow.

**Terminology :** Back spin, centre line, half court, late control end, counter hitting, sidespin, swing stroke, Rally, Reverse sandwich, push stroke, service top spin, Net grip, Chinese grip, penholder grip, End line, foil, half volley.

**Cups and Trophies :** Maharaja Peethapuram cup (National men's singles), Travancore cup (National women's singles), Ramanujan trophy, Padmavati trophy, Indira cup, Rajkuman challenge cup, Swasthling cup, Corbellion cup, Iran cup, Saint widewash etc.

**Former greats :** Chang yea Pyong, Jallaxmi, Ramanujan etc.

**Current players :** Kamlesh Mehta, Chelan Baboor, Sujay Ghorpade, Arup Basak, M.S. Mathli, Mauma Das, Niyati Shah, A. Radhika, Bhuvaneshwari, Monto Ghosh, V.Srinivasan, Ivi Chandran, Sriram Archana Rao (India), Deng

Yaping, Yang Ying, Kong Ling, Liu Guoliang, Wu Na, Kong Li Hui, Wang Nan, Wang yang (China), John Valdner, Peter Carlson, Michael Applegreen, Jorganierson (Sweden), Mathew Syed,

Alan cook (England), Jun Hang Jinu, Pa: Fern Tan (Singapore), Philip Gatten (France), Chen jingo (Tawan), C Koyama (Japan), Kim Tek, Soo Hyan, Jung Hyan (S.Korea).



## Main events of 1999

**60th National and International sub junior and cadet table tennis championship :** On the 30th of January '99 in Indore, west Bengal won all the ten titles on display. It won 4 team titles, 4 singles titles and 2 doubles titles. Nity Basak and Aruna won the men's and women's cadet titles while saurabh chakraborty and Sumit Rao won the junior cadet titles.

**Senior National table tennis Championship :** On the 9th of January '99 in Chennai, Petroleum sports control board and Railways won the men's and women's titles respectively. Petroleum sports control board beat west Bengal 3-0 while railways also beat west Bengal 3-0 to bag the title.

**World table tennis (Women's) :** Wang Nan of China, the top seed beat her fellow countrywomen Zhang Yi Ning to win the women's title of the world table tennis competition. The finals was played on the 7th of August '99 in Eindhoven (Holland).

**Asian table tennis :** Ryu Siyung Min (Korea), the top seed beat 8th seed Wang Hao of China to bag the Asian table tennis title. In the women section Li Kang Bing of china defeated her countrywomen Zhang Peng to bag the women's title. The matches were played on the 5th of September '99.





# HOCKEY

A game resembling modern hockey was played during ancient times in Persia. In the medieval age a game 'Hockey' was played in France which also resembled modern hockey. The first mention of hockey occurs in Lincolnshire (Britain) in the year 1772. In Scotland the game was known as 'Shanty' and in Ireland it was known as 'Harley'. The birth of modern hockey took place in the mid 19th century. In 1861, the first organised hockey club - the Blackheath Rugby and hockey club - was established in England. The International Hockey Federation was founded in 1884. The first International hockey match was played between Wales and Ireland in Rayle on 26th June, 1895. The first world cup hockey tournament was organised in Barcelona in 1971. India has won the gold medal in Olympics 8 times. Hockey is our national sport.

**Sport profile :** Each team has 11 players. The circumference of the ball is between 223 to 224 cm. The weight of the ball is between 155 to 163 grams. The length of the playing field is 91.44 metre and its breadth is between 50 to 55 metre.

**Terminology :** Infingement, sideline, tie breaker, sudden death, Hatnck, stick, under cutting, circle, bulley, Rollin, push in, shooting circle, Polley, Right and left back, outside right, Inside right, centre forward, Inside left, outside left, centre half, Line, corner, short corner, long corner, Penalty stroke, Flick, Reverse flick, scoop, Umpire, Linesman, Half volley, Pad, gloves

**Cups and Trophies :** Mumbai gold cup, Dhyan chand trophy, Jawahar Lal Nehru cup,



Surjeet singh cup, Agha Khan cup, Scindhia gold cup, Him gold cup, Ceasers Clark cup, Murugappa gold cup, cuppuswamy cup, Maharaja Ranjit Singh gold cup, Roop Singh gold cup, Khan Abdul gaffar khan Trophy, K.D. Singh babu trophy, D.C.M. Srimam trophy, challenge cup, Rene frank trophy (world championship), Champions trophy, Stand cup, B.M.W trophy, Azlan shah cup, Indira Gandhi International gold cup, Rangaswamy cup (national men's championship), Lady Ratan tata trophy (National women's championship), Beighlon cup, Obedullah gold cup, Federation cup etc.

**Former greats :** Major Dhyanchand, Balwinder Singh, Roop Singh, Aslam sherkhan, K.D Singh babu, Pargat singh, M.P. Singh, Zafar Iqbal, Mohd Shahid etc.

**Current players :** Mukesh Kumar, Dhanraj Pillai, Shakeel Ahmad, Darell D'souza, Ashesh Balal, Anil Aldrin, Ravi Naik, Atif Idris, Seville D'mellow, Dilip Tirkey, Rajeev Mishra, Baljeet Singh Saini (India), Xavier Amod, Joseph Sanchez, Pavio Amut, John Eskary, Xavier Eskude, Victor Puzol, John Dinars, Jacquin Malgosa (Spain), Michael Berman, Stefan Davis, Paul Louis, Michael Yark, Jeremy Hiskins, Warren Birmingham, Ken Wark, David Wonborough, James Ilmer, Paul Gwodin, Daniel Ezpore (Australia), Peter Tivis, Christian Mayer Haffer, Christopher Backman, Patrick Vallenvum, Oliver Domay, Nils Kolbjek, Cristean Blank, Andreas Becker, Kirsten Fisher, Michael Hilgers (Germany), Stephan Von, Rumco Von Wif, Tyun De Nojier, Brem Lomans (Netherland), Ahmad Mansoor, Sarvas Mohammad, Naved Alam, Kamran Ashraf, Babar Abdullah, Tahir Zaman (Pakistan), Young Kui Kim, Siyok Kyo Shin, Siyong Ti Song, Kyon Muk Kong, Yun Konyo (S.Korea).

## Main events of 1999

**India-Pakistan test series :** Pakistan won the 9 match series 6-3. Out of the 9 matches 4 were played in India in which Pakistan won 3-1. The next 5 games were played in Pakistan in which Pakistan won 3 matches and India 2.

**Rangaswamy cup (59th Senior National men's hockey championship) :** In the finals played in Hyderabad on the 26th of March '99, Indian Airlines beat Tamil Nadu 4-1 to win the Rangaswamy cup. This was the 9th occasion when Indian Airlines had won the national championship.

**9th Azlan Shah cup :** In the finals played in Kuala Lumpur on the 10th of April, Pakistan beat South Korea 3-1 to win the Azlan Shah cup. Earlier, South Korea had beaten Pakistan in the Bank Asian games and the champion's trophy and so this win was a sweet revenge for the Pakistanis.

**Telstra challenge women's hockey series :** In the four nation Telstra challenge women's hockey series played in Perth (Australia) on the 1st of May, Olympic champions Australia thrashed South Africa 5-0 in the finals to win the title.

**4th nation junior women's hockey tournament :** In New Jersey on the 27th of June '99, Indian junior women's hockey team beat England in the finals to win the title. It was the first foreign tour of the Indian Junior women's hockey team.

**Champions trophy (Men's) :** Australia beat South Korea 3-1 in the finals of the champions trophy played at Brisbane (Australia) on the 20th of June to win the title. Holland beat Spain 5-2 to take the third position.

**Champion's trophy (Women's) :** The Australian women's hockey team beat Holland to win the women's champions trophy.

**India-Germany hockey series :** In the four match series played in June '99 in Germany, the Indians beat India 3-1 to win the series. Germany won the first three matches while India managed a win in the last match of the series.

**Murugappa all India hockey tournament :** On the 10th of July '99 in Chennai, the Indian Hockey federation XI beat Mumbai XI 5-0 to win the Murugappa Challenge (Murugappa) trophy.

**India-South Africa Series :** In the series played in August '99, South Africa beat India 3-0 in the 5 match series. The best the Indians could

do was to achieve a draw in two of the five matches.

**Hero Honda Asia Cup women's hockey tournament :** South Korea beat India at New Delhi through a golden goal by their captain Hyon Younglee to bag the title.



## BOXING

The first signs of boxing are seen in the mural paintings of Greece. In the 18th century, modern boxing took its present form. New rules were laid during this period. In 1860, the Queensbury rules were framed. On the basis of this new rule, the first boxing competition was organised in 1867. In 1901 boxing was granted legal recognition. The two governing bodies of boxing are the world boxing council (WBC) and the world Boxing Association (WBA).

**Categories :** Light flyweight (Less than 49 kg), Flyweight (Less than 51 kg), Bantam weight (54 kg), Feather weight (57 kg), Junior light weight (59 kg), Light weight (61 kg), Light middle weight (71 kg), Middle weight (75 kg), Light heavy weight (81 kg), Cruiser weight (88.5 kg), Heavy weight (91 kg), Super heavy weight (More than 91 kg).

**Sports profile :** The minimum size of the boxing ring is 4.9x4.9 meter and the maximum size is 6.10x6.10 metre. The ring is between 91 to 122 cm high from the ground, level bounded by ropes from all sides.

**Terminology :** Ring master, Jab, rear, cover up, clinch, In fighting, bell, back header, Barrage, Volvo punch, upper cut, lower cut, below the belt, back peddle, Bout, Bunting, Kicker, punch, lead, Neutral corner, right cross, swing



## WORLD OF SPORTS

seconds out, not out, Knockout, bell block, blow, bounce of ropes, hook, guard, hang on, hill, pivot punch, Round, wag, punch ball, punch drunk, sash, nng craft.

**Cups and trophies :** World cup championship, Presidents cup, Meyers cup, Kings cup, Virginia long corn trophy, WBA title, WBC crown.

**Former Greats :** Mohammed Ali, Joe Louis, and Leon Spinks.

**Current Boxers :** Evander Holyfield, Riddick Bowe, Tony Morisson, Tony Tucker, Mike Tyson, Virgin Hill, Tony Lopez (U.S.A), Frank Bruno, Lenox Lewis, Nigel Van (Britain), Christians Espana (Venezulea), Caesar Chavez, Fouts Caesar Basket, Richard Jules Higaet, Agence Gonzales (Hexico), Park Young Kyun (S Korea), Dingo Singh, Devanand, Rajendera Prasad, Dharmendra Singh Yadav, Manoj Pinglay, Gurucharan Singh, Joram Thanga (India).

### Main events of 1999

**International Boxing Federation's welter weight title :** Felix Trinidad Junior beat Pernell Whittier in New York to win the welterweight crown. The bout took place on the 20th of February.

**45th senior national boxing championship :** the Army won 7 out of 12 titles to win the team championship in the 45th senior national boxing championship. The Railways and C.I.S.F bagged the second and third positions respectively. Suresh Singh of the central industrial security force was adjudged the best boxer of the tournament.

**Laila Ventures into boxing :** Known by the name of 'Madam Butterfly', the daughter of former heavy weight boxer Mohammed Ali turned professional on the 8th of October '99. In her first fight she quickly disposed of the challenge of April Flower to win her first professional bout.

**World heavy weight boxing :** Lennox Lewis of England beat Evander Holyfield to win the world heavy weight-boxing crown.

**Y.M.C.A. International boxing competition :** In the competition held on the 9th of March in New Delhi, the Indian senior and junior boxers

gave a good account to themselves to bag 9 of the 14 gold medals on display. Ukraine, Mauritius and Sri Lanka bagged the 2nd, 3rd and 4th places respectively. India won the senior and sub juniors titles. Ukraine won the juniors title. Ukraines Yefimovich Oleg was declared the 'best boxer' of the tournament. In the event Amardeep and Ramanand of India gave a good account of themselves in the sub junior and senior category.



## WRESTLING

This ancient sport was prevalent as far back as 2500 B.C. It was a healthy sport meant for entertainment. The main schools of wrestling are free style, Greco-Roman and sumo wrestling. In 1912, the highest governing body of wrestling - 'the International Amateur Wrestling federation' was founded.

**Categories of Wrestling :** Light fly weight (48 kg), Fly weight (52kg), Bantam weight (57kg), Feather weight (62kg), Light weight (68kg), Welter weight (74kg), Middle weight (82kg), Light heavy weight (90kg), Heavy weight (100 kg), Super heavy weight (more than 130kg).

**Sports Profile :** For International competitions the mat has a diameter of 9 meter. At the centre, there is an inner ring measuring 1 meter in diameter.

**Terminology :** Body press, Cradla, Hype tech down, Half Nelson, slam, sticklers, hook, head hold, double, cross, buttock, referee, time keeper, sudden death, double nelson, tie, foul, point, bat mat, permanent obstacles, obstacles in bout, caution, warning, penalty point, Dog fall, back, flying mars, cross pace, breakdown, bridge.

**Former greats :** Dara Singh, Gur Hanuman, Chandagiram, Kartar Singh

**Current Wrestlers :** L. Khovelov, A. Fadzra S.Martinov, I.Dogu (Russia), Z.Jones, K.Jackson (U.S.A), Pappu Yadav, Ramesh Kumar, Ashok Kumar, Kehar singh, Succha Singh, Sanjay Kumar, Sanjay Singh (India), H. Milian (Cuba), M.Bullman (Germany), P.Far (Hungary)



of England beat his fellow countryman Adam Gilchrist 2001-832 to win the world professional billiards title.

## L. GOLF

**Terminology :** Bogey, Foursome, Tee, put, Hole, Nivlick, Caddy, link, Putting, Vrtly.

**Cups and trophies :** Bharat Ram Cup, C.M. open golf cup, Circuit cup, Canada cup, Eeishenhour cup, Muthaiya gold cup, Nomura trophy, Prince of wales cup, Rider cup, walker cup, Murphy cup, Lincoln trophy, Curtis cup, Phillip Morris cup, Hafed open

### Main events of 1999



**British open golf championship :** On the 19th of July '99 in Scotland, Paul Lorry (Scotland) played a remarkable game to win the British open golf title. Till the third round, Jean de valde and Justin Leonard were ahead of him but he rallied magnificently to pip

them to the post. He had qualified for this championship after playing in the pre-qualifying matches.



## CHESS

**Ubeda open chess championship :** In the Spanish town of Ubeda, on the 30th of January '99, Constantine Lenda of Russia won the title. Both Constantine Lenda and A. Driev were locked at 8.5 points but on the basis of better tiebreak he was declared the winner. India's K. Sasikaran took the seventh place.

**61st Hogovan International Grand masters tournament :** On the 19th of January in Holland, Garry Kasparov beat his archrival Vishwanathan Anand of India to win the 61st Hogoven International Grand Masters tournament. Kasparov secured 10.5 points in 13 matches. Vishwanathan Anand and Wesley Inavchuk got 9 points each but on better average, Vishwanathan Anand got the second place.



Vishwanathan Anand

porov drew his last encounter with Vladimir Kremenik to win the 61st Hugovence grandmaster chess tournament. Kasparov got 10 points in the tournament and remained undefeated. Vishwanathan Anand beat Vaseline polor in his last match to finish up with 9.5 points and gain the second spot.

**Linares open chess (8th March) :** Garry Kasparov won the Linares open chess title by securing 10.5 points and leading the table. Kasparov had earlier won this tournament in 1990, 1991, 1993 and 1997. Vishwanathan Anand and Vladimir Kremenik jointly shared the second spot.

**Rapid International chess tournament :** On the 18th of July '99 at Biel in Switzerland Russian grand master Sergie Volvo beat Gruis Chur of his own country to win the Rapid International Chess tournament.

**World chess champion :** In the 14th world chess championships held on the 27th of August '99 in Lasvegas, Russian grandmaster Alexander Khaliefman beat Armenian grand master Vladimir Akopian to win the title.

**World title :** In Orpes des Mir (Spain) India's Aarti Ramaswamy beat many high ranked players to win the under 18 world title. However, Koneru Hampi of India could not repeat her last years performance and lost to Nana Dajagnidze of Georgia.

**World Rapid Chess Rating :** In July 1999 FIDE declared the rapid chess ratings. Vishwanathan Anand also known as 'Speed Gonzales' top the ranking followed by Vladimir

**Linares open chess :** In Linares, on the 18th of January, Russian grand master Alexy Driev beat V. Bologen of Macedonia to win the Linares open chess title.

**61st Hugovence grand master chess tournament :** Russian grandmaster Gary Kasparov

Kreimeik, Boris Gelfand, A. Shirov, P. Sweedler, Anatoly Karpov etc.

The final medals tally were as follows:



## ATHLETICS



### Main events of 1999

**Pune International Marathon :** Kenyan Jablon Mokaya won the Pune International Marathon held in Pune on the 17th of January '99. He covered the distance of 42.195km in 22.54 minutes.

**Golden League Gala Athletics Competition :** In the one mile run, Moroccan Hickem-el-Gurez covered the distance in 3 minute 42.13 seconds to create a world record. He beat the previous record held by Algerian Nuruddin Morcelli.

**World Athletics Championship :** Michael Johnson of United States of America created a new world record in the 400 meters by clocking 43.18 seconds. He broke the previous record held by Buch Reynolds.



## 13th ASIAN GAMES

The last Asiad of the 20th century concluded in Bangkok, the capital of Thailand. The games continued for 15 days starting from the 6th of December '98. The 2002 Asiad will be held in Pusan (S. Korea).

41 countries participated in the events for 1225 medals that were on display. China topped the medal tally while India bagged the 9th position.



### Medals Tally

Country	Gold	Silver	Bronze	Total
China	129	78	67	274
South Korea	65	46	54	165
Japan	52	61	67	180
Thailand	24	26	39	89
Kazakhstan	24	24	30	78
Taiwan	19	17	41	77
Iran	10	11	12	33
N Korea	7	14	17	35
India	7	11	17	35
Uzbekistan	6	22	12	40
Indonesia	6	10	11	27
Malaysia	5	10	14	29
Hongkong	5	6	6	17
Kuwait	4	6	4	14
Sri Lanka	3	0	3	6
Pakistan	2	4	9	15
Singapore	2	3	9	14
Qatar	2	3	3	8
Mongolia	2	2	10	15
Myanmar	1	6	4	11
Philippines	1	5	11	17
Vietnam	1	5	11	17
Turkmenistan	1	0	1	2
Kirghizstan	0	3	3	6
Jordan	0	3	3	6
Syria	0	2	4	6
Nepal	0	1	3	4
U.A.E	0	1	1	2
Macao	0	1	0	1
Bangladesh	0	0	1	1
Brunei	0	0	1	1
Laos	0	0	1	1
Oman	0	0	1	1

The Mascot of the 13th Asian games was the elephant 'Chaiyo'. Koji It of Japan won the gold medals in the sprint event and was declared 'Athlete of the games'. India won 7 gold, 11 silver and 17 bronze medals. Jyotirmaya Sridhar won two gold medals in the 1500 and 800-meter sprint. The details of the medal winners are as follows:

### Athletics

**Gold :** Jyotirmaya Sridhar (1500 m and 800 m)

**Silver :** Men's 4x100m relay (Paramjit Singh, Jata Shankar, S Ram Chandraiah, Dhanraj)

**Winners of some major events**

M= Men's, W= Women's

Event	Gold	Silver
1 Volley ball	(M) Punjab (W) Kerala	Tamil Nadu Maharashtra
2 Hand ball	(M) Services (W) Kerala	Punjab Manipur
3 Football	(M) Maharashtra (W) Manipur	Assam West Bengal
4 Hockey	(M) Punjab (W) Maharashtra	Maharashtra Haryana
5 Kho Kho	(M) Karnataka (W) Karnataka	Maharashtra Maharashtra
6 Table Tennis	(M) Tamil Nadu (C.S. Raman) (W) West Bengal (Mauma Das)	West Bengal (Anup Basak) West Bengal (Anandita Chakraborty)
7 Gymnastics	(M) Uttar Pradesh (W) West Bengal	
8 Sepak Takra	(M) Manipur (W) Manipur	West Bengal West Bengal
9 Lawn Tennis	(M) Tamil Nadu (W) Maharashtra	Maharashtra Tamil Nadu
10 Badminton	(M) Andhra Pradesh (W) Andhra Pradesh	Maharashtra Maharashtra

Lizo), shot put (Shakili Singh), Discus throw (Anil Kumar); 800m women's (Roza kully) 500m women's (Sunila Rani) 4x100m relay women's (Jinsy Philips K.M. Beenamol Roza kully, Paramay Sikdani)

Bronze : 400m men's (Paramjit Singh), 800m men (Bahadur Prasad), 10,000 m men (Sulab Chand), 100m women's (Rachita Mistry), 1500 m (Sunila Rani), Discus throw women's (J Neelam Singh), Javelin women's (Gurmeet Kaur)

**Billiards**

Gold : Singles (Ashok Shandilaya), doubles (Shandilaya and Geet Sethi)

Silver : Singles (Geet Sethi)

Bronze : Doubles (Devendra Joshi and B Bhaskar)

**Equestrian**

Bronze : Team event (Parvinder Singh, Amlojeet Singh, Imtiaz Anis, Rajesh Pulli)

**Hockey**

Gold : Men's team

Silver : Women's team

**Kabaddi**

Gold : Men's team

**Yachting**

Bronze : HPL category (R.Singh, K.Khan, B.Kalikathu, P. Singh)

H-4 category (T. Singh, B. Singh, J.Singh, J Xavier).

**Shooting**

Silver : Trap team (Jorawar Singh Manavjeet Singh, Mansher Singh) Centre fire Pistol (Jaspal Rana)

Bronze : Centre fire pistol team (Jaspal Rana, Ved Prakash, A.Pandit)

**Lawn Tennis**

Bronze : Men's singles (Mahesh Bhupathi and P. Snnath) Mixed doubles (Mahesh Bhupathi and Nirupma Vaidyanathan) Men's teams (Mahesh Bhupathi, Nalin Kiratne, Saiyyad Fazluddin, P Snnath)

**Weight lifting**

Silver : 63 kg category (Karnam Malleswari)

**Boxing**

Gold : 54 kg (Dinko Singh)

Bronze : 81 kg (Gurucharan Singh)



**SAF Games**

The 8th South Asian Federation games were held in Kathmandu from the 25th of September to the 4th of October '99. The mascot of this year's game was 'Himkancha' or the snow leopard found in Nepal. In these games a total of 12 events namely athletics, boxing, football, karate, Kabaddi, shooting, swimming, Taikwando, Table Tennis, Volleyball, weightlifting and wrestling took place. All the seven members of SAARC took part in these events. India dominated the proceedings winning 102 gold, 58 silver and 37 bronze medals to emerge the leaders. Nepal, Sri Lanka, Pakistan, Bangladesh, Bhutan and Maldives shared the other

positions in decreasing order Indians faced little competition as the results showed. In the swimming events, Nisha Millet helped India to win all the gold medals on display. Similarly Jaspal Rana helped



*Nisha Millet*

India to win 8 gold medals in the shooting events. India also won gold medals in the men's and women's volley ball, table tennis, Taikwando, Athletics and weight lifting. Indians suffered a set back in Kabaddi where they lost to Pakistan. Similarly they lost to Nepal in the finals of football. The 9th SAF games will be held in Peshawar in 2001. In

this game badminton and squash will be included making the number of events to 14.

## Fifth National Games

The fifth National games were held in Imphal the capital of Manipur from the 15th to the 24th of February '99. The next national games will be held in Jullundhar in the year 2000. The winter games will be held in Manali (himachal Pradesh). Though Kerala topped the medals tally, Manipur was declared the overall champions and given the Raja Bhalendra Singh trophy for securing 484 points. Kerala with 481 points got the second spot. Nisha Millet of Kamataka and Sebastain Xavier won 14 gold and 1 silver and 7 gold and 1 silver medal in the swimming events respectively. For their astounding performance they were declared best

## Champions of the century

Soccer idol Pele and former boxing world champion Mohammed Ali were among the winners of the 'world sports award of the century' chosen by an International jury headed by International Olympic committee president Juan Antonio Samaranch. The other sportsmen who were similarly felicitated were Annemarie Moser, Proell, Alain Prost, Dawn Fraser, Carl Lewis Mark Spits and Nadia Commanaci.

The International Amateur Athletic Federation named Maurice Green (100m), Sergie Bubbka (Pole vault), Carl Lewis, Fanny Blankers-Koen and Jesse Owens as the 'athletes of the century'. In another event organised by sports illustrateds 20th century sports award, Mohammed Ali was honoured as the 'sportsman of the century'. The other sports persons to be honoured were Babe Ruth (baseball), Michael Jordan (basketball), Jim Brown (football), Wayne Gretzky (hockey), Carl Lewis (best olympian), Jack Nicklaus (Golf), Babe Didrickson Zaharias (top female athlete). Other athletes who had an impact on sports were also honoured. They included Pele, (football), Arnold Palmer (golf), Richard Petty (Driver), Jackie Robinson (base ball), Bill Russel (basket ball), Peggy Fleming (figure skate) and Billie Jean King (lawn tennis).





## Arjuna Awards

On the 1st of September '99, President K.R. Narayan facilitated the Arjuna award winner in the Rashtrapati Bhavan. The main awards were as follows :

- Rajeev Gandhi Khel Ratna Award : Jyotirmayi Sikdar
- Dronacharya Award Bahadur Singh and Har-govind Sandhu (Ath-letics) G.S. Sandhu (Box-ing)
- Athletics : Neelam J Singh, Rachita Mistry, K. Siri Chandra Ram, S.D. Ishan, Paramjeet Singh
- Boxing : N.G. Dinko Singh
- Body building : T.V. Polly
- Cricket : Rahul Dravid, Nayan Mongia
- Football : Baichung Bhutia
- Hockey : Pritam Rani, S. Omana Kuman (women) Surjeet Singh (Posthumously), Baljit Singh Dhillon, Mohammad Riyaz, Baldev Singh, M.K. Kaushik
- Judo : Narendra Singh
- Kabaddi : Ishan Kumar Vishwajeet Palit
- Kho kho : Shobha Narayan
- Shooting : Rupa Unnikrishnan Manavjit Singh
- Swimming : Bhanu Sachdeva
- Table Tennis : Subhramaniam Raman
- Wrestling : Kaka Pawar Rohitas Singh Dahiya
- Weightlifting : Satish Rai
- Physically handicapped category : Anju Bau (Gymnastics) Rajni Ramanujan (Athletics)
- Maulana Abdul Kalam trophy : Guru Nanak Dev University.



Jyotirmayi Sikdar



N.G. Dinko Singh

two new sports namely 'khang Ta' and 'Kaang' were introduced as exhibition sports.

## Medals Tally

State	Gold	Silver	Bronze
Kerala	52	34	22
Manipur	49	24	39
Punjab	34	29	42
Delhi	31	29	38
Karnataka	28	28	24
Services	29	27	25
Maharashtra	21	29	40
Uttar Pradesh	16	17	13
Tamil Nadu	16	15	17
West Bengal	12	27	40
Chandigarh	11	6	10
Bihar	10	14	12
Andhra Pradesh	9	6	11
Haryana	8	12	23
Madhya Pradesh	7	13	18
Orissa	2	14	3
Andaman and Nicobar	1	17	8
Himachal Pradesh	1	2	2
Rajasthan	1	1	7
Goa	1	1	1
Gujarat	1	0	0
Meghalaya	0	2	1
Assam	0	2	1
Mizoram	0	1	1
Jammu and Kashmir	0	0	3

## Best Olympians of the Century

The top ten male and female Olympians of the 20th Century according to Associated press are :

Male	Female
1. Carl Lewis	1. Jackie Joyner Kersee
2. Paavo Nurmi	2. Larisa Latynina
3. Emil Zatopek	3. Nadia Comaneci
4. Jesse Owens	4. Vera Caslavskia
5. Mark Spitz	5. Irena Szewinska
6. Al Oerter	6. Dawn Frazer
8. Jim Thorpe	8. Wilma Rudolph
9. Paul Elvstrom	9. Florence Griffith Joyner
10. Michael Johnson ■■	

women and best male athletics of the games Jaspal Rana Scored 591 out to 600 points in the standard pistol event to create a New World record. The mascot of the games was 'Sangai' a rare species of deer found in manipur. In these games



# GENERAL KNOWLEDGE

- Units of measurement • Scientific names of subjects • Important dates
- Popular and real names of some entertainers • Popular names of great personalities • Human world • Highest, Lowest, Greatest, Largest, Smallest
- Sobriquets • India in the records
- First in India • First in Space, Sports, Expeditions & Invasions

## Units of measurement

**Angstrom** : An instrument used for measuring the length of light waves.

**Barrel** : Measurement of the quantity of liquid. One barrel =  $31\frac{1}{2}$  gallons or 7,326.5 cubic inches

**Bolt** : 40 yards. Used for measuring cloth

**Cable** : About 100 fathoms or 600 feet.

**Carat** : 200 milligrams or 3.0088 grains troy. Used for weighing precious stones. Also a measure of the purity of gold alloy.

**Fathom (faith)** : 6 feet or 1.8288 m. Derived from the distance to which a man can stretch his arms. Used for measuring cables and depths of water

**Hand** : 4 inches or 10.16 cms. Used for measuring the height of horse.

**Hogshed (hhd)** : 2 liquid barrels or 14,653 cubic inches. Used for measuring liquid, usually wine.

**Knot** : The rate of speed of one nautical mile per hour. Used for measuring the speed of ship

**Micron** : 0.01 millimeter. Used for scientific measurement.

**Quire** : Used for measuring paper. Sometimes a quire amounts to 24 sheets but more often 25. 20 quires constitute a ream

**Ream** : Used for measuring paper. Sometimes 480 sheets but more often 500 sheets

**Acre** : An area of 43,600 square feet. Originally the area, a yoke of oxen could plough in one day.

**Ampere** : Unit of electric current. A potential difference of one volt across a resistance of one Ohm produces a current of one ampere

**Astronomical** : 93,000,000 miles.

**Unit (A.U.)** : It is the average distance of the earth from the sun. Used in astronomy

**Bale** : A large bundle of goods, weighing 500 pounds

**BTU** : British Thermal Unit. Amount of heat needed to increase the temperature of one pound of water by one degree Fahrenheit (252 calories)

**Cubit** : 18 inches or 45.72 cm. Derived from distance between elbow and tip of middle finger.

**Decibel** : Unit of relative loudness. One decibel is the smallest amount of change detectable by the human ear.

**Freight Ton** : (also called Measurement Ton) 40 cubic feet of merchandise, used for cargo freight

**Gross** : 12 dozens or 144.

**Hertz** : Modern unit for measurement of electromagnetic wave frequencies (equivalent to "cycles per second.")

**Horsepower** : The power needed to lift 33,000 pounds a distance of one foot in one minute

**League** : Rather indefinite and varying measure, but usually estimated at 3 miles in English speaking countries.

**Light Year** : 5,880,000,000,000 miles or the distance that light travels in a year at the rate of 186,281.7 miles per second. (If an astronomical unit were represented by one inch, a light year would be presented by about one mile.). Used for astronomical measurements.

**Ohm** : Unit of electrical resistance. A resistance of one ohm in the circuit with a potential difference of one volt produces a current of one ampere.

**Parsec** : Approximately 3.26 light-year or 19.2 trillion miles. Term is a combination of first syllables of parallax and second, and distance is that of imaginary star when lines drawn from it to both earth and sun form a maximum angle or parallax of one second (1/3600 degrees). Used for measuring interstellar distances.

**Pi** : The ratio of the circumference of a circle to its diameter. Its value is approximately 3.14159265. For practical purposes, the value is used to four decimal places that is 3.1416.

**Pipe** : 2 hogsheads. Used for measuring wine and other liquids.

**Point** : approximately  $\frac{1}{16}$  inch, used in printing of measuring type size.

**Quintal** : 1000,000 grams or 220.46 pounds avoirdupois

**Röntgen** : Dosage unit of radiation exposure produced by X-rays.

# Scientific names of subjects

**Anatomy** : Science of bodily structure.

**Archaeology** : Study of ancient civilisations from the ruins of old buildings and monuments.

**Aerodynamics** : The branch of Physics that treats the laws of motion of gases under the influence of gravity and other mechanical forces.

**Astrology** : Art of prediction by analysing the effect of heavenly bodies upon the destiny of man.

**Astronomy** : Science of the heavenly bodies. It is the scientific study of the magnitude, motion, relative positions and all connected phenomena of heavenly bodies.

**Acoustics** : The science of sound, its production, transmission and effects.

**Astrophysics** : A branch of astronomy concerned with the physical nature and composition of stars.

**Automation** : Anything moving automatically.

**Ballistics** : Science of launching projectiles into the atmosphere or space.

**Biochemistry** : The study of the chemical or physiochemical processes and products involved in the life phenomena of plants and animals.

**Callisthenics** : Exercises for promoting beauty and strength.

**Cosmography** : Description, mapping of general features of the universe or earth.

**Demography** : Study of statistics of birth rate, population, death rate etc.

**Entomology** : Study of insects.

**Ethnology** : Science of the races and their relations to one another and their characteristics.

**Eugenics** : Science of production of desired offsprings.

**Embryology** : Science of the womb.

**Etymology** : Part of linguistic science concerned with facts relating to formation and meaning of words.

**Ethnography** : The subject which deals with the regional distribution of the races of mankind.

**Gynaecology** : The branch of medicine that is concerned with the diseases singular to women specially of the genital tract and its structure and glands concerned with it.

**Genealogy** : Table showing descent of family or animal species in the shape of tree with branches.

**Gastronomy** : Art and science of good eating.

**Genetics** : The study of heredity of individual's.

**Geophysics** : Science dealing with the properties of matter and energy which brings about changes in the earth's surface.

**Geopolitics** : Study of nations's political life in relation to its geographical features.

**Geology** : Science of earth's crust, its strata and their relations and changes.

**Geodesy** : Branch of mathematics dealing with the shape and area of the earth.

**Horticulture** : Art of garden cultivation.

**Hydropony** : Medical treatment by external and internal application of water.

**Hydroponics** : Study of raising of plants on water without the help of soil.

**Hydrodynamics** : Scientific study of the forces exerted by liquids.

**Heliotherapy** : Use of sun-baths in healing diseases.

**Hydrography** : Scientific study of the water bodies of the earth.

**Hydrophonics** : Detection of sound under water.

**Lexicography** : The study of dictionary making.

**Metalurgy** : The branch of science dealing with the method of extraction of metals from their ores and the preparation of alloys.

**Meteorology** : Science of weather and climate.

**Mycology** : Study of fungi.

**Numismatics** : Study of coins or coinage.

## Important rivers

Name	Approx. length (Km)
Nile	6,690
Amazon	6,295
Mississippi-Missouri	6,020
Yangtze Kiang	5,797
Congo	4,371
Amur	4,352
Brahmaputra	2,697
Indus	2,697

## GENERAL KNOWLEDGE

**Ornithology** : Scientific study of birds.  
**Osteopathy** : Surgery related to correction of deformities.  
**Optics** : Science of eye or sense of sight.  
**Pathology** : Science of bodily diseases.  
**Paleobotany** : Science of the fossils of plants.  
**Phonetics** : Art of correct pronunciation.  
**Pedagogy** : Science of teaching.  
**Penology** : Study of punishment and of prison management.  
**Philology** : Study of different languages.  
**Philately** : Art of stamp-collecting.  
**Palmistry** : The art of reading the past or future of a person by studying the lines on the palm of his hand.  
**Physiography** : The study of the physical features of the earth, their causes and their relation to one another.  
**Psychology** : Science of dealing with the study of

human mind.  
**Pisciculture** : Art of rearing fish.  
**Photomicrography** : The taking of photographs through microscope.  
**Radiology** : Science of conversion of radiant energy into mechanical force.  
**Seismology** : Scientific study of earthquakes.  
**Sericulture** : Study of silk worm breeding.  
**Taxidermy** : Art of preparing and mounting skins of animals in life-like manner.  
**Topography** : The art of representing on a map the physical features of a place.  
**Toxicology** : The science that treats the origin, nature, properties, and effects of poisons, their detections in the organs and tissues, and of the treatment of diseases due to poisoning.  
**Voodooism** : The custom of practising black magic or belief in superstitions. Practiced in Africa and Haiti.

## Important dates

**Jan 11** : Death anniversary of Lal Bahadur Shastri  
**Jan 15** : Army Day  
**Jan 23** : Netaji Subhash Chandra Bose's birth anniversary  
**Jan 26** : Republic Day  
**Jan 30** : (Martyr's Day) Mahatma Gandhi's Martyrdom Day  
**Jan 28** : Birth anniversary of Lala Lajpat Rai  
**Jan 30** : Martyr's Day  
**Feb 13** : Sarojini Naidu's Birth Anniversary  
**Feb 14** : St Valentine's Day  
**Feb 28** : National Science Day  
**March 3** : National Defence Day

**March 4** : National Safety Day  
**March 8** : International Women's Day  
**March 12** : Mauritius Day  
**March 15** : World Consumer Day  
**March 19** : World Disabled Day  
**March 21** : World Forestry Day  
**March 24** : World TB Day  
**March 30** : Rajasthan Day  
**April 1** : Onissa Day  
**April 5** : National Maritime Day  
**April 7** : World Health Day  
**April 14** : B R. Ambedkar Remembrance Day  
**April 18** : World Heritage Day  
**April 22** : World Earth Day  
**May 1** : International Labour Day (May Day)  
**May 3** : International Energy Day  
**May 3** : Sun Day  
**May 9** : International Red Cross Day  
**May 11** : National Technology Day  
**May 15** : International Family Day  
**May 17** : World Telecom Day  
**May 21** : Anti Terrorism Day  
**May 24** : Commonwealth Day  
**May 31** : World No Tobacco Day

### Important deserts

Name	Place
Great Salt Lake	West of Great Salt Lake to Nevada-Utah line
Kalahari	South Africa between the Orange and Zambezi Rivers
Thar	Rajasthan, India
Atacama	North Chile
Black Rock	Northwest Nevada
Sahara	Africa
Gobi	Mongolia

**June 5 :** World Environment Day  
**June 26 :** International Day Against Drug Abuse  
**June 27 :** World Diabetes Day  
**July 1 :** Doctors Day  
**July 4 :** American Independence Day  
**July 11 :** World Population Day  
**August 1 :** World Breast Feeding Day  
**August 6 :** Hiroshima Day  
**August 9 :** Quit India Movement Day  
**August 14 :** Pakistan's Independence Day  
**August 15 :** Independence Day  
**August 20 :** Sadbhavana Divas  
**Sept 5 :** Teacher's Day  
**Sept 8 :** International Literacy Day  
**Sept 14 :** Hindi Day  
**Sept 16 :** World Ozone Day  
**Sept 27 :** World Tourism Day  
**Oct 1 :** International Day for the Elderly (UN)  
**Oct 2 :** Gandhi Jayanti  
**Oct 3 :** World Animals Day  
**Oct 5 :** World Habitat Day, World Teachers Day  
**Oct 6 :** World Vegetarian Day  
**Oct 8 :** Airforce Day  
**Oct 9 :** World Postal Day

**Oct 10 :** World Mental Health Day  
**Oct 16 :** World Food Day  
**Oct 17 :** International Poverty Eradication Day  
**Oct 20 :** National Solidarity Day (China attacked India on that day) It was decided to observe 20th October as the National Solidarity Day.  
**Oct 24 :** United Nations Day  
**Oct 31 :** National Integration Day  
**Nov 14 :** Children's Day  
**Nov 17 :** Guru Nanak Dev's Birth Anniversary  
**Nov 20 :** Flag Day  
**Nov 26 :** Law Day  
**Nov 29 :** International Day of Solidarity with Palestinian People  
**Dec 1 :** World Aids Day  
**Dec 5 :** Navy Day  
**Dec 7 :** Armed Forces Flag Day  
**Dec 10 :** Human Rights Day  
**Dec 11 :** UNICEF Day  
**Dec 19 :** Goa's Liberation Day  
**Dec 23 :** Kishan Divas (Farmers Day)  
**1998 :** International year of ocean (UN)  
**1999 :** International year of older persons (UN)

## Popular and real names of some entertainers

Popular Names	Original Names	Rock Hudson	Roy Scherer Jr
Ben Kingsley	: Krishna Banji	Danny Kaye	: David Kaminsky
Mel Brooks	: Melvin Kaminsky	Bruce Lee	: Lee Yuen Kam
Marilyn Monroe	: Norma Jean Mortenson	Madonna	: Madonna Louise Ciccone
John Wayne	: Marion Morrison	Jerry Lewis	: Joseph Levitch
Woody Allen	: Allen Komigsberg	Omar Sharif	: Michael Sha'boub
Tony Curtis	: Bernard Schwartz	Julie Andrews	: Julia Wells
Doris Day	: Doris von Kappelhoff	Boy George	: George alan O'Dowd
Ava Gardner	: Lucy Johnson	Richard Burton	: Richard Jenkins
Greta Garbo	: Greta Gustafsson	Michael Caine	: Maurice Molewhite
Whoopi Goldberg	: Caryn Johnson		

## Popular names of great personalities

**Lady with the lamp :** Florence Nightingale  
**Grand Old man :** Dadabhai Naoroji of India  
**Iron Duke :** Duke of Wellington  
**Guru Ji :** M.S. Golwalkar  
**John Bull :** England and the English people  
**Rajagopalachari**

**'C.R.' Chakravarti**  
**King Maker :** Earl of Warwick  
**'J.P.' Jayaprakash Narayan**  
**Little Corporal :** Napoleon  
**Mahamanya :** Pt Madan Mohan Malaviya  
**Gurudev :** Rabindranath Tagore

## GENERAL KNOWLEDGE

*Maid of Orelens* : Joan of Arc

*Desh Bandhu* : C.R. Dass

*Yankee* : Inhabitants of U.S.A.

*Lion of the Punjab*

*(Sher-i-Punjab)* : Lala Lajpat Rai

*Bard of Avon* : Shakespeare

*Panditji* : Jawaharlal Nehru

*Man of Blood* : Bismark

*Andhra Kesri* : T. Prakasam

*Lokmanya* : Bal Gangadhar Tilak

*Bapu* : Mahatma Gandhi

*Apostle of Free Trade* : Richard Cobden

*Netaji* : Subhas Chandra Bose

*Desert Fox* : Gen Rommel

*Nightingale of India* : Sarojini Naidu

*Lal, Bal, Pal* : Lala Lajpat Rai, Bal Gangadhar

Tilak, Bipin Chandra Pal

*Father of English Poetry* : Geoffrey Chaucer

*Fuehrer* : Hitler

*Iron man* : Sardar Vallabh Bhai Patel

*Ike* : Gen. Eisenhower.

*Tomy Atkins* : English soldier

*Jawan* : Indian soldier

*Poolu* : French soldier

*Vizzy* : Maharaja Kumar of Vizianagara.

*G.I.* : American soldier

*Wizard of the North* : Sir Walter Scott

*Samuel Clemens* : Mark Twain

*Sparrow* : Major Gen Rajender Singh

*Shastriji* : Lal Bahadur Shastri

*Babuji* : Jagjiwan Ram.

## Human world

**The oldest person** : A Danish born American named Christian Mortenson (115) is believed to be the oldest person in the world after the death of French woman Jeanne Clement at 122. However, a Brazilian woman claims that she is 126 and a Lebanese claims that he is 135 years old. But the validity of their ages are not yet proved.

**Tallest Man** : Haji Mohammad Alam Ghanna of Pakistan and Manute Bol, a basketball player of Sudan share this honour. They are both 233 cm (7.8 ft).

**Tallest woman** : Sandy Allan of Canada with a height of 231.7 cm (7.7 ft) is the tallest woman of the world.

**First test tube baby** : Louise Brown (2.6 kg), Lanchashire, England on July 25, 1978.

**First Human Heart Transplant** : Louis Washkansky, 55 at Cape Town, S. Africa, (Dec. 1967). However the operation was not entirely successful as the patient died shortly.

**Youngest Best Actress** : Victoire Thivisol (4 years) won the 1996 best actress prize at Venice film festival (Silver Lion) for her performance in French film "Ponette".

**World's Richest businessman** : According to

Forbes magazine, Microsoft Chairman Bill Gates tops the list of world's billionaires with an asset of \$36.4 billion.

**Longest Running film** : "Emmanuella" ran from June 26, 1974 to Feb 26, 1985. It set the record of longest continuous run for a film.

**Longest Running Play** : Agatha Christie's play 'The Mousetrap', ran from Nov. 1952 to March 1974 in the Ambassadors theatre, London and had 8862 performances.

**Highest Newspaper Circulation** : Yomiuri Shimbun of Japan with a circulation of 14,474,573 is the largest circulated newspaper in the world. It has a staff of 10,205.

**Maximum Grammy Awards** : Michael Jackson won 8 Grammy Awards in 1984. He has the record of winning maximum number of Grammy Awards in a given year.

**Maximum Oscars** : Walt Disney (1901-66) won maximum number of Oscars. It comprise 20 statuettes, 12 other plaques and certificates.

**Around the World** : Linda Flinch completed her around the world journey on May 28, 1997. She took her twelve days to achieve this. She started on March 17 and covered 42,000 km.

**Greatest Partnership in Cricket** : Sanat

Jaysuriya (326 not-out) and Roshan Mahanama (211 not-out) created a world record partner-

ship of 548 runs on Aug 5, 1997. It is a record for any wicket.

## Highest, Lowest, Greatest, Largest, Smallest

*The country having the largest population :* China

*The biggest dome :* Gol Gumbaz (Bijapur, Karnataka)

*The highest building :* Palace of Soviets (Moscow)

*The country with the largest electorate :* India

*Highest Volcano :* Colopaxi (Andes, Ecuador)

*Highest Mountain of Europe :* Elburz (Caucasus)

*Longest Railway Tunnel :* Tanna (Japan)

*Highest Waterfall :* Angel (Venezuela)

*Largest thoroughfare :* Broadway (New York)

*Shortest Private Railway (3/4 miles) :* Railway of the Pope in Vatican city

*Planet nearest to the sun :* Mercury

*Planet farthest from the sun :* Pluto

*Longest road tunnel and Italy (7 1/4 miles) :* Mont Blanc Tunnel, between France

*Largest animal :* Blue or sulphur bottom whale

*Largest land animal :* The African Bush elephant

*Fastest land animal :* Cheetah (maximum speed 96-101 km/h)

*Largest forest :* Coniferous forests in Northern Russia (between 55° N and the Arctic Circle)

*Place of maximum sunshine :* Eastern Sahara (annual average of 97 percent)

*Largest Gulf :* The Gulf of Mexico (1500,000 sq km)

*Hottest place :* Dallol, Ethiopia

*Largest land mass :* Eurasian land mass

*Highest waterfall :* Angel falls in Venezuela (979m)

*Coldest place :* Polus Nedostupnosti at Antarctica (-57.8°C)

*Fastest Train :* Nozmi 500, Japan's latest bullet train (average speed is 261.8 km/h)

*Most valuable painting :* 'Mona Lisa' by Leonardo Da Vinci (1452-1519). Its value is assessed as \$100 million.

*Longest-English Dictionary :* The 12 volume Oxford English Dictionary (15,487 pages). Edited by R. W. Burchfield

*Largest-Encyclopaedia :* Le Enciclopedia Universal

*Illustrada Europeo-Americana* (105,000 pages)

104 volumes, 10 appendices. Its price is \$2,325

*The highest lake :* Titicaca 12,000 ft (Bolivia)

*The largest city (in area) :* London, 700 sq miles

*Largest Office Building :* Pentagon (U.S.A.) where

32,000 men work, having 17 miles of corridors

*The shortest day :* 22nd December (in the northern hemisphere)

*The longest day :* 21st June (in the northern hemisphere)

*The largest planet :* Jupiter

*The biggest passenger ship :* Queen Elizabeth II

### World's first

First man in space : Yuri Gagarin

First men to climb Mt. Everest

Edmund Hillary and Tenzing Norgay

First man to encircle globe : Magellan

First woman to climb Everest : Junko

Tabei

First European invader on India

Alexander the Great

First man on moon : Neil Armstrong

First European to visit China

Marco Polo

First man to visit North Pole : Robert

Piery

First man to visit South Pole

Amundsen

First woman to climb Everest twice

Santosh Yadav

First woman in space : Valentina

Terechkova

First woman to walk in space

Svetlana Svetlana

First black African to get Noble Prize for literature : Wole Soyinka

First woman Prime Minister : Indira

Bandaranaike



## GENERAL KNOWLEDGE

- (83,000 tons) (U.K.)
- The biggest park* : Yellowstone National Park (U.S.A.)
- The deepest place* : In the Pacific, off the island of Mindanao : (The Philippines) (35,000 ft.)
- The highest city* : Wen : Chuan (China 16,000 ft.)
- The highest extinct volcano* : Chimborazo (Ecuador.) 20, 702 ft. (6286 m)
- The largest volcano* : Mauna Los (Hawaii) crater 12,400 ft. in diameter
- The smallest continent* : Australia
- The largest mountain system* : Andes (South America)
- The lowest body of water* : Dead Sea (Palestine) 1,230 ft. below sea-level
- The largest inland sea* : Mediterranean Sea.
- The highest dam* : Hoover Dam (U S A)
- The largest peninsula* : India
- The highest mountain peak* : Mount Everest (Nepal), 29,156 ft. (8854 m)
- Highest mountain in Africa* : Kilimanjaro 18,000 ft. high
- The largest island (excluding Australia)* : Greenland 8,27,300 sq. miles (217,5600 sq. kms),
- The largest river (in volume)* : Amazon (Brazil, S. America) , basin : 27,02,200 sq. miles
- Largest Archipelago* : Indonesia
- Highest capital city* : La Paz (Bolivia)
- Largest continent* : Asia (area 16 million sq. miles)
- Largest desert in Asia* : Gobi Desert (Mongolia-area 5,00,000 sq. miles)
- Coldest Region* : Verkhoyansk (Siberia)
- The highest statue* : Statue of Liberty (New York)
- The longest railway bridge* : Lower Zambesi (Africa)
- The longest railway platform* : Khargpur, West Bengal (2733 ft.)
- The longest non-stop train* : Flying Scotsman
- The longest shipping canal* : Baltic White Sea Canal-140 miles
- The largest State (area)* : U.S.S.R. (former)
- The longest railway run* : Riga to Vladivostok (Russia)
- The largest coral formation* : The Great Barrier Reef, North-eastern coast of Australia
- The longest river* : Nile (Egypt)
- The largest salt water lake* : Caspian Sea
- The largest fresh water lake* : Lake Superior (U.S.A.)
- The largest desert* : Sahara (Africa)
- The largest delta* : Sunderbans (Bengal, 8,000 sq. miles)
- The deepest lake* : Baikal, 3,200 ft (Siberia).
- The largest bell* : The Great Bell of Moscow (200 tons)
- The longest wall* : Great Wall of China (1,400 miles)
- The biggest museum* : British Museum (London)
- The biggest library* : National Kiev Library; Russia (70,97,000 vols)
- The largest single country* : Brazil (area 3.1 million sq. miles)
- The largest recognized swimming course* : English Channel (23 miles, Calais to Dover)
- The highest tower* : Tokyo Tower (Japan) 1,000 ft. high.
- The largest ocean* : Pacific (6,29,86,000 sq. miles)

## Sobriquets

- Sobriquets : Original Places*
- Bengal's Sorrow* : Damodar River
- Blue Mountains* : Nilgiri Hills
- China's Sorrow* : Hwang Ho
- City of Eternal Springs* : Quito (South America)
- City of Magnificent Distance* : Washington, D.C., USA
- City of Palaces* : Calcutta
- City of Seven Hills* : Rome
- City of Skyscrapers* : New York
- City of the Golden Gate* : San Francisco
- City of the Golden Temple* : Amritsar
- Cockpit of Europe* : Belgium
- Dark Continent* : Africa
- Emerald Isle* : Ireland
- Empire City/City of Skyscrapers* : New York

Eternal City : Rome  
 Gateway of Tears : Strait of Bab-el Mandeb  
 (Jerusalem, Palestine)  
 George Cross Island : Malta  
 Gift of the Nile : Egypt  
 Granite City : Aberdeen  
 Great White Way : Broadway, New York  
 Hermit Kingdom : Korea  
 Herring Pond : Atlantic Ocean  
 Holy City : Jerusalem  
 Holy Land : Palestine  
 Island of Pearls : Bahrain  
 Key of the Mediterranean : Gibraltar  
 Key to Mediterranean : Gibraltar  
 Land of Maple leaf : Canada  
 Land of Morning Calm : Korea  
 Land of Rising Sun : Japan  
 Land of the Golden Fleece : Australia  
 Land of the Golden Pagoda : Myanmar (Burma)  
 Land of the Kangaroo : Australia

Land of the Midnight Sun : Norway  
 Land of the Thousand Lakes : Finland  
 Land of the White Elephants : Thailand  
 Land of Thunderbolt : Bhutan  
 Never Never Land : Prairies of N. Australia  
 Garden Province of South Africa : Natal  
 Pillars of Hercules : Gibraltar  
 Pink City : Jaipur  
 Playground of Europe : Switzerland  
 Quaker City : Philadelphia  
 Queen of the Adriatic : Venice, Italy  
 Queen of the Arabian Sea : Kochi  
 Roof of the World : Pamirs  
 Sick Man of Europe : Turkey  
 Spice Garden of India : Kerala  
 Sugar Bowl of the World : Cuba  
 Venice of the North : Stockholm, Sweden  
 White City : Belgrade, Yugoslavia  
 World's Bread Basket : Prairies of N. America  
 World's Loneliest Island : Tristan da Cunha

## India in the records

Largest delta : Sunderbans (8000 sq miles)  
 Highest rainfall : Cherrapunji in Meghalaya  
 Busiest bridge : The world's busiest bridge is the  
 Howrah Bridge across the River Hooghly in  
 Calcutta. In addition to 57,000 vehicles a day it  
 carries an incalculable number of pedestrians  
 across its 457 m (1,500 ft) long 22 m (72 ft)  
 wide span.

Largest employer : Indian Railways (1,61,670 staff)  
 Longest railway platform : Kharagpur, West Ben-  
 gal (833 m or 2733 ft in length)  
 Largest election : It began on 20th May 1991 for  
 the Lok Sabha, with 543 elective seats  
 315,439,908 people out of an electorate of  
 488,678,993 cast their votes 359 parties con-  
 tested the elections and there were a whoop

### Important mountain peaks

Name	Mountain Range	Place	Height (Mtrs)
Everest	Himalayas	Nepal-Tibet	8,848
Godwin Austen (K-2)	Karakoram	India (under occupation of Pakistan)	8,611
Kanchenjunga	Himalayas	India	8,598
Makalu	"	Tibet-Nepal	8,470
Dhaulagiri	"	Nepal	8,168
Nanga Parbat	"	India	8,126
Annapurna	"	Nepal	8,078
Gosaithan	"	Tibet	8,013
Nanda Devi	"	India	

ing number of 565,000 polling stations manned by 3 million staff!

*First woman minister in a state* : Vijayalakshmi Pandit was Minister for local Govt. and Health

in U.P. in 1937. She later became India's first woman ambassador, and the first woman president of UN General Assembly.

*Oldest living language* : Tamil

## First in India

- India's first post office was opened on 1727 in Calcutta by East India Company.
- First telegraphic connection in India started between Calcutta and Diamond Harbour in 1851.
- India's telecommunication services-started in 1870.
- Radio broadcasting in India started between Bombay and Calcutta, in the year 1927.
- The first railway services in India was between Bombay and Thane in 1833.
- India's first Doordarshan Kendra was established in Delhi on an experimental basis in 1959
- India's first silent film is Raja Hansh Chandra. It was made by Dada Saheb Phalke in 1913.
- India's first talkie is Alam Ara. It was made by Adhesir Irani in 1931.
- India's first cinemascope film is 'Kagaz Ke Phool'. It was made by Guru Dutt in 1959.
- India's first regular oilwell was unearthed in Digboi (Assam) in 1890
- Rabindranath Tagore became the first nobel laureate of India when he won the internationally coveted prize for literature in 1913.
- Annie Besant became the first woman President of Indian National Congress (1917).
- Vijay Laxmi Pandit was the first woman Ambassador of India (1947-49-U.S.S.R.)
- Omiana Abraham of Kottayam is the first woman President of a national stock exchange. She was the President of Cochin stock exchange.
- Kiran Bedi is the first woman I.P.S. officer of India (1972).
- Mother Teresa became the first Indian woman (by citizenship) to win the Nobel Prize. She won it for peace in 1979.
- First Indian woman to scale Mount Everest is Bachendri Pal (1984)
- Santosh Yadav became the first Indian woman to scale Everest twice.
- Rakesh Sharma became the first man in India to go to space (1984)
- Kalpana Chawla became the first woman and only the third Indian to go to the space (1997)
- S.F.F.J. Manek Shah was the first Field Marshal of India (1971).
- General Cariappa was the first Commander in Chief of independent India (1949).

## First in space, sports, expeditions & invasions

### First in Space

*The first person in the world to land on the moon*  
Neil A. Armstrong and Edwin E. Aldrin Jr. of U.S.A. Armstrong was the first to set foot on the moon followed by Aldrin July 21, 1969.

*The first man to enter space* Major Yuri Gagarin (Russian)

*The first women cosmonaut of the world*  
Valentina Tereshkova

*The first American astronaut to float in space* : Edward White

*The first unmanned spaceship to have softlanded and lifted off from the moon to return to the earth*  
Luna-16 (U.S.S.R.) Sept. 21, 1970

*The first manned space vehicle to land on the moon* Lunar Exploration Module (LEM) nicknamed 'Eagle'

*The first space ship which carried three American astronauts to land two of them on the moon*  
Apollo-11

*The first country to send man to the moon* : U.S.A.

*The first space-vehicle to orbit the moon* : Luna-10

(U.S.S.R.)

The first unmanned moon buggy to explore surface of the moon : Lunakhod-1 (U.S.S.R.)

The first space rocket brought back to earth after orbiting the moon : Nond-5

First crew transfer between the orbiting space ships : Soyuz T-15 with Mir Space Station

The first mission of a link-up in space by manned space : ships of U.S.A. and Soviet

Union : Apollo-Soyuz Test Project Mission (ASTP) (launched on July 15 and linked up in space on July 17, 1975) Vladimir

India's first scientific satellite : Aryabhata

The first man to fly into space belonging to a country other than Russia or the U.S.A. Remark (Czechoslovakia)

Russia's first spaceship with international crew on board.: Soyuz-28

The first country to send nuclear powered space craft to explore Jupiter. : U.S.A

The First Indian to go into space : Sq. Ldr Rakesh Sharma

The first to launch earth satellite or artificial body moon : U.S.S.R.

The first Russian cosmonaut to make two space flights : Lale Col. Vladimir Komarov

The first American astronaut to make two space flights : Gordon Cooper (U.S.A.)

The first country to launch a cosmic space rocket towards moon : U.S.S.R

The first space rocket to hit the moon : Lunakhod-1

The first spaceship in the world to sample moon's crust : Surveyor-3 (U.S.A.)

The space vehicle to soft land on moon : Luna-9 (U. S. S. R.)

The first manned spaceship to perform the longest stay in space (11 days) : Apollo-7 (U.S.S.R.)

The first manned spaceship to perform space flight round the moon : Apollo-8 (U.S.A.)

The first American manned spaceship to perform crew transfer in space : Apollo-9 (U.S.A.)

### First in Sports

The first Indian (among women) to swim across the English Channel : Miss Arati Saha (Mrs. Arati Gupta)

The first Indian (among men) to swim across English Channel : Mihir Sen

The first person to ski down Mount Everest : Yuichiro Miura of Japan

The first Indian to win World Billiards Trophy : Wilson Jones

The first back player to win the Wimbledon singles title : Arthur Ashe (U.S.) 1975

First Indian women to climb Mount Everest : Bachchan Pal

First Indian Grand Master : P. N. Reddy

### Classical dance forms of India

Dance	Place of Origin	Famous Dancer/Danseuse
Bharatnatyam	Tamil Nadu	Yamini Krishnamoorthy, Indrani Prasad, Arundhati Mahalingam, Sarabha, P. N. Reddy, Sarabha, Leela Samson
Kathakali	Kerala	Udayashankar, Minnal, Samson
Kathak	North India	Geeta Chandran, Shambhu, P. N. Reddy, Nataraj, Chandrabella
Manipuri	Manipur	Santa Merta, Uday Shankar
Odissi	Orissa	Santa Merta, Uday Shankar, Santa Merta, P. N. Reddy
Kuchipudi	Andhra Pradesh	Santa Merta, P. N. Reddy, P. N. Reddy
Mohiniyattam	Kerala	Shanti, P. N. Reddy, P. N. Reddy

**Vishwanathan Anand**

The first man to win 4 Olympic Gold Medals :  
Alvin Kranztein (U.S.A.) in 1900

The first lawn tennis player who won the Wimbledon  
championship for five years consecutively : Bjorn  
Borg

First batsman to score three test centuries in three  
successive Tests on debut : Mohd. Azharuddin

World's first Cricketer to score more than 10,000  
runs in his test cricket career : Sunil Gavaskar  
(India). He is also record holder of most centu-  
ries (34) in Test Cricket followed by Allan Border  
of Australia.

## First Expeditioners

The first person to reach the North Pole by over-  
land Journey : Robert Peary

The first person to reach the South Pole :  
Amundsen

The first person to have climbed Mount Everest :

Sherpa Tenzing (19th May, 1953)

The first person to sail round the world : Magellan

The first woman to conquer Mount Everest : Mrs.  
Janko Tabei of Japan

The first man to have climbed Mount Everest  
twice : Nawang Gombu

The first vessel ever to reach the North Pole by  
sailing through the thick : Arctic ice Soviet Arklika  
Atomic-powered icebreaker)

The leader of the expedition 'Ocean to Sky' : Sir  
Edmund Hillary

The first two mountaineers who reached the sum-  
mit of Everest without using oxygen : Peter  
Habeler (Austrian) and Reinhold Messner (Ital-  
ian)

The first person to reach North Pole by 7 dogs  
sledge : Naomi Uemura (Japanese)

The leader of the 1st Indian Antarctica Expedition  
: Z.A. Kasim

## Composition of religious population

Religion	World Population	% of world population
Christianity	1,927,953,000	33.7
	1,099,634,000	19.2
Nonreligious	841,549,000	14.7
Hindus	780,547,000	13.6
Buddhist	323,894,000	5.6
Atheists	219,925,000	3.8
Chinese folk religionists	225,137,000	3.9
New-Religionists	121,297,000	2.1
Ethnic religionists	111,777,000	1.9
Sikhs	19,161,000	0.3
Jews	14,117,000	0.2
Confucians	5,254,000	0.09
Baha'is	6,104,000	0.1
Jains	4,886,000	0.08
Shintoists	2,884,000	0.05
Other religionists	1,923,000	0.03

Source : Encyclopaedia Britannica Book of the  
Year, 1996.

## First/Last Heads of State

The first woman Prime Minister of a country (twice) :  
Mrs. S. Bandarnaik (Sri Lanka)

The first President of the U.S.A. : George Wash-  
ington

The first President of the Chinese Republic : Sun  
Yet Sen

The First Governor-General of Pakistan : Mohd. ;  
Ali Jinnah

The last king of France : Napoleon III

## First Visitors & Invaders

The first European to visit China : Marco Polo

The first Chinese pilgrim to visit India : Fahien

The first European invader on Indian soil .  
Alexander, the Great

The first U.S. President to resign Presidency  
Richard Nixon

The first woman ambassador of Britain : Anne  
Warburton

The first woman Prime Minister of a European  
country : Margaret Thatcher

The first woman Prime Minister of France : Miss.  
Edith Cressan. ■■

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# IMPORTANT WORLD PERSONALITIES

**Homer (C.700 BC) :** A Greek epic writer; author of *The Illia* & the *Odyssey* in which we get a vivid description of the life and the society of ancient Greece.

**Loa Tsze (604-518 BC) :** A Chinese philosopher; who founded the religion Taoism.

**Pythagoras (C.582-500 BC) :** A Greek philosopher and mathematician who propounded various principles of geometry.

**Zoroaster (Zarathustra) (C.628-C.551 BC) :** Founder of the Parsee religion. A monotheist; preached that there is an incessant struggle between good and evil i.e. Ahur Mazda and Ahirman, always resultant victory in goodness.

**Confucius (K'ung Fu-tse) (C.551-479 BC) :** Another Chinese philosopher who founded the religion Confucianism. He concentrated himself to good-ruling of the state.

**Darius I (522-486 BC) :** A Persian king; heir of Cyrus, the founder of Achaemenid empire. He extended the borders of the Achaemenid empire up to India, founded a new capital Persepolis.

**Aeschylus (524-456 BC) :** A Greek dramatist, founder of Greek tragic drama. His famous dramas : *The Seven Against Thebes*, *Prometheus Bound*.

**Sophocles (495-406 BC) :** The greatest Greek tragic dramatist; wrote *Oedipus Tyrannus*, *Antigone*, *Electra*, etc.

**Pericles (490-429 BC) :** Athenian politician, who drove the democracy in Athens to its acme. He ended the rule of tyranny and started the jury system.

**Herodotus (C.485-425 BC) :** The Greek historian is generally considered as 'the father of history'; travelled a lot to write the history of the war

between Greece and Persia.

**Euripides (480-406 BC) :** The last Greek tragic dramatist of 'the trumvirate', the other two were Aeschylus and Sophocles. He denounced war; wrote *Trojan Woman* and other 80 plays.

**Aristophanes (C.450-C.385 BC) :** The greatest Greek comic dramatist who made fun of Greek high society men by his satire.

**Socrates (470-399 BC) :** Greek philosopher and scholar; Plato's teacher. He advocated experiment and knowledge and denounced the traditional faith; he was blamed for treachery and sentenced to death by drinking hemlock.

**Hippocratic (C.430 BC) :** Greek physician called 'the father of medicine'. He believed that every disease must have a natural cause and not out which nothing happens.

**Plato (427-347 BC) :** Greek philosopher and thinker; pupil of Socrates and teacher of Aristotle. He wrote the famous book *The Republic* in which an ideal state is dealt with.

**Aristotle (384-322 BC) :** Greek philosopher and scientist; pupil of Plato and teacher of Alexander of Macedonia, wrote *Poetics*, *Politics* and *Ethics*.

**Demosthenes (384-322 BC) :** Greek orator who challenged the power and authority of Philip of Macedonia and united the Athenians against him.

**Philip of Macedonia (382-336 BC) :** Ruler of Macedonia and father of Alexander the Great.

**Alexander the Great (356-323 BC) :** A great Greek commander and conqueror. He is one of the greatest conquerors the world has ever seen. King of Macedonia never tasted defeat. Conquered South-West Asia and Egypt; founded Alexandria.

a city in Egypt. Tried to penetrate into India in 327 BC but failed as his soldiers refused to go ahead. Died at Babylon at young age of 33 years.

**Epicurus (342-270 BC)** : Famous Greek philosopher and thinker. Founder of the school of Epicureanism. He believed in peace of mind and so preached refined sensuous pleasure and luxury. His surviving works are few and fragmentary but his philosophy, especially his atomism was expounded by Lucretius.

**Euclid (c.300 BC)** : Greek mathematician; famous for his great textbook, entitled *Elements* on plane geometry, the theory of numbers, rationals and solid geometry, which was standard work on geometry until recent times.

**Megasthenes (Fourth Cent. BC)** : A Greek envoy to the court of Chandragupta Maurya sent by Seleucus in 305 BC. Wrote an account of India in his famous book *Indica*, which is unfortunately not available and the text of this book came down to us in fragments preserved by Strabo, Arrian and Diodorus, the later writers.

**Archimedes (287-212 BC)** : Greek scientist and mathematician; worked in the field of mechanics and hydrostatics; best known for the Archimedean theory of buoyancy.

**Cicero (106-43 BC)** : A famous Roman orator and statesman, a stoic in thought; favoured Pompey in civil war, executed by Antony.

**Julius Caesar (101-44 BC)** : A great Roman general who attacked England and Gaul (France); defeated his competitor general Pompey, married to the beautiful Queen of Egypt Cleopatra; became dictator of Rome; Senate hatched a conspiracy to assassinate Caesar under the leadership of Brutus; contribution—Julian Calendar.

**Brutus, Marcus Junius (85-42 BC)** : Roman senator who conspired against Julius Caesar; was considered heinous traitor in history who betrayed his master; butchered by the supporters of Caesar.

**Antonius Marcus (Mark Antony) (C.83-30 BC)** : Roman senator and general, made triumvir with Lepidus and Octavian; supported Caesar; fought Octavian; but defeated; loved the

beauty queen and mistress of Caesar: Cleopatra, committed suicide.

**Horace (65-8 BC)** : Roman epic poet who amalgamated Epicurean and stoic thoughts in his poem.

**Virgil (70-19 BC)** : Roman epic poet, best known for his epic *Aeneid* in which he described the bravery of Aeneas of Troy (Asia Minor).

**Cleopatra (69-30 BC)** : Egyptian queen, jointly ruled with her brother Ptolemy XII, made marriage with Julius Caesar; later fell in love with Mark Antony; committed suicide.

**Augustus, Gaius Octavianus (63 BC-AD 14)** : First emperor of Roman empire, ruled for 24 prosperous years with the titles Augustus and Imperator; called himself Prince and first citizen of state; his reigning period is called 'Pax Romana' i.e. peace of Rome. His age is best known for the prosperity of literature when Horace and Virgil lived.

**Jesus Christ (4 BC-AD 28)** : Founder of Christianity; born in Bethlehem near Jerusalem; he attracted people and made them his followers by his simple life, magnetic personality, love and sympathy for all. He was crucified by the Roman governor Pontius, his death anniversary is celebrated as 'Good Friday' by Christians all over the world.

**Plutarch (C.46-C.120)** : Greek Platonist philosopher and biographer; most influential work was the 'Lives' of great men, Montaigne, Shakespeare, Dryden, and Rousseau are among his debtors.

**Nero, Claudius Caesar (AD 37-68)** : An infamous and tyrant Roman emperor who persecuted people of Rome. It has become a proverb about him, "when Rome was burning, Nero was busy in blowing the flute".

**Antony, St. (C.251-356)** : Started monasticism in Christian religion, spent a pious life.

**Mohammed, Hazrat (570-632)** : Founder of Islam religion. 'The Quran' the holy book of Islam is considered to be the word of God reproduced by Mohammed, was forced to migrate from Mecca to Medina, this incident is called Hجرة.

**Abu Bakr (573-634)** : Successor of



## GENERAL KNOWLEDGE

Mohammed; Caliphate started from him.

**Charlemagne (742-814)** : A Great emperor in Medieval Europe; founder of a new Roman Empire which comprised Gaul (modern France), Italy and large parts of Spain and Germany; laid the basis for the Holy Roman Empire.

**Alfred the Great (849-89)** : King of Wessex who became a national figure. He prevented Danes; took London (886) thus gaining control of all England save the Danish areas. He built ships; was an able administrator and promoted education, his own translations from the Latin being part of the earliest English literature; also devised a legal code.

**Firdausi (930-1020)** : A great Persian poet; wrote history of Persia; famous book *Shahnama*.

**Al-Biruni** : Original name Abu Rihan Muhammed; born at Khiva in AD 973, came to India with Mahmud Ghaznavi (997-1030) and stayed on in India; wrote famous book *Tanbih-i-Hind* giving detailed information about Hindus, their philosophy, customs and manners.

**Omar Khayyam (C.1050-1123)** : A Persian poet and scholar, wrote *Rubaiyat* which acclaimed universal fame, translated into all leading languages of the world

**Genghis Khan (1162-1227)** : The Mongol viceroy and conqueror who devastated many central Asian countries, came up to the river Indus in pursuit of a prince of Khwarezm; founded a great Mongol empire

**Sheikh Sadi (1184-1294)** : A famous Persian poet; wrote *Gulistan* and *Bostan*

**John, King (1167-1216)** : King of England; issued a charter called 'Magna Carta' in 1215, it started a chain of democratic reforms, which culminated in the supremacy of Parliament over king.

**Kublai Khan (1216-94)** : The first Mongol emperor of China; grandson of Genghis Khan, extended the Mongol empire; lived an unparalleled gorgeous and splendid life.

**Marco Polo (1256-1323)** : A famous traveller and discoverer of Venice (Italy); the first European traveller who travelled wide in China, India and other oriental countries; wrote interesting

travelogues.

**Dante, Alighieri (1265-1321)** : Italian poet and philosopher; wrote the *Divine Comedy* which is his spiritual testament, narrating his journey

**Petrarch (1301-74)** : Founder of humanism; a great poet of Renaissance period; used Italian language for writing; admirer of Caesar, Cicero and Virgil; reproduced these characters in a new style of inspiration.

**Boccaccio, Giovanni (1313-75)** : Italian novelist and humanist; considered as the father of the novel; important books: *Decameron*, *Life of Dante*

**Hafiz (1320-89)** : A great Persian poet; famous writing—*Diwan-e-Hafiz*.

**Ibn Batuta** : A great Arabian scholar and traveller, native of Tangiers (Morocco); came to India in the reign of Mohammed bin Tughlaq (1333), was appointed Nazir of Delhi; worked there eight years; sent to China as ambassador; wrote a book named *Rehla*.

**Tamertane (1336-1405)** : Ruler of Samarkand; a great warrior who captured almost all of Central Asian region; came to India as a conqueror; but his wrath of god; butchered thousands of Delhiites and plundered them.

**Chaucer, Geoffrey (1340-1400)** : Considered as 'the father of English poetry'; 'The Canterbury Tales' is an album of contemporary life in verse.

**Joan of Arc (1412-31)** : French patriot who believed that she is sent by God to release France from English domination; born in humble peasant family, fought bravely but captured and burnt at the stake by the English soldiers; a great source of inspiration for the freedom fighters of all the enslaved countries of the world.

**Raphael (1438-1520)** : One of the greatest Italian artists of Renaissance period. Other two were Leonardo da Vinci and Michelangelo; famous paintings include *Madonna and Child*; mural paintings and portraits made by him are second to none.

**Columbus, Christopher (C.1451-1506)** : Italian sailor and explorer, sponsored by the king of Spain; sailed for exploring the sea route to India

but reached the West Indies in 1492, discovered Bahamas, Cuba and other islands.

**Leonardo da Vinci (1452-1519)** :

The great artist of Renaissance period, resident of Florence had multifarious talents in different areas such as of paintings, architecture, philosophy, composing, sculpture, athletics, mathematics, science and many more subjects. Best known for the paintings *Last Supper* and *Mona Lisa*; the mysterious smile of *Mona Lisa* magnetizes the onlookers even today.



**Vespucci, Amerigo (1454-1512)** : Italian explorer; discovered the mainland of America, after whom America is named.

**Vasco da Gama (1460-1524)** : A Portuguese sailor and explorer; explored India (seashore of Calicut) in 1498 through the sea route of Cape of Good Hope (South Africa). He earned 60 times of the cost of voyage from the spices he took away from India.

**Erasmus (1466-1536)** : Dutch scholar and the greatest humanist of Renaissance period for which he is considered as the 'First European' by some historians. Wrote *Praise of Folly*, perhaps the first best seller in the world.

**Machiavelli, Niccolo (1469-1527)** : Italian writer and diplomat gave diplomacy a new height, is generally known as Chankaya of modern Europe; wrote the famous book *The Prince*; is called father of political science.

**Michelangelo (1475-1564)** : A great painter, sculptor and architect of Italy. The ceiling of the Sistine Chapel of Vatican contains his great paintings the 'Last judgement' and 'The Fall of Man'. He contributed his talents in making of the St. Peters.

**Thomas More, Sir (1478-1535)** : English author and statesman. Wrote *Utopia*, narrating an ideal society.

**Copernicus Nicolas (1478-1543)** : Polish astronomer; is considered 'founder of modern astronomy'; propounded that the earth rotates on its

axis and revolves round the sun

**Magellan, Ferdinand (1480-1521)** : Portuguese navigator who started his voyage westward through South America, named the discovered Pacific Ocean; circumnavigate the globe first time and thus proved that the earth is round

**Martin Luther (1483-1546)** : Famous German religious reformer who protested the evils of Catholicism, thus started a new sect in Christianity i.e. Protestantism

**Albuquerque, Alfonso de (1453-1515)** : Founded Portuguese imperialism all over the world, won Goa in 1510 and thus is considered as the real founder of Portuguese power in India

**Gregory XIII (1502-85)** : Catholic saint Pope who reformed the existing calendar, the present calendar is called Gregorian calendar after him

**Nostradamus (1503-66)** : French astrologer who made prophecies for remote future

**Calvin, John (1509-64)** : French Protestant reformer and theologian, propounded religious theories through the book *Institute of Christian Religion*, his sect is known as 'Presbyterianism'

**Elizabeth I (1533-1603)** : Queen of Britain (1558-1603), defeat of Spanish Armada took place during her reign. Britain achieved multifaceted development in all areas like literature, colonialism and navy power during her reign

**Drake, Francis (1540-96)** : English navigator and explorer, sailed round the world in 1577

**Cervantes, Saavedra Miguel de (1547-1616)** : Spanish novelist who made fun of medieval knights in his famous book *Don Quixote*

**Spenser, Edmund (1552-991)** : English poet, wrote *Faerie Queene*

**Bacon, Francis (1561-1626)** : A great English philosopher and essayist, called as the father of essays, wrote *Novum Organum*

**Shakespeare, William (1564-1616)** : The greatest dramatist and poet of English language started writing at the age of 29, wrote 38 plays of which important are *Hamlet*, *Othello*, *Macbeth*, *Julius Caesar*, *Merchant of Venice*, *Romeo and Juliet* and *Tempest*

**Galileo (1564-1642)** : Italian scientist and

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astronomer; confirmed the theory of Copernicus; invented telescope which was capable of searching celestial bodies.

**Kepler, Johannes (1571-1630)** : German astronomer and scientist who proved by calculation that how planets revolve around the sun; gave laws of motion of planets.

**Harvey, William (1578-1657)** : English physician who discovered the mechanics of blood circulation in 1616.

**Cromwell, Oliver (1599-1658)** : English soldier and statesman; led Puritans or Roundheads against the Cavaliers; the king Charles I had to subdue and beheaded; became the 'Lord Protector'; was a military despot.

**Charles I (1600-49)** : King of Great Britain; opposed; the power of Parliament; a civil war broke in which he was hanged by the supporters of Parliament.

**Milton, John (1608-74)** : English epic poet; wrote *Paradise Lost*, a great epic of all time, *Paradise Regained*, *Samson Agonistes*

**Bunyan, John (1628-88)** : English poet and religious thinker; wrote *The Pilgrim's Progress*.

**Locke, John (1632-1704)** : British political thinker and philosopher who advocated for the human rights and restraint over powers of king.

**Newton, Sir Isaac (1642-1727)** : English scientist; best known for his theory of gravitation; his great works include the composition of white light, the calculus; wrote a book *The Principia*.

**Defoe, Daniel (1660-1731)** : English writer best known for his writing *Robinson Crusoe*; an all time great fiction.

**Anne, Queen (1665-1714)** : Queen of Great Britain and Ireland. Her reign was notable for literary output, development in science, architecture and for victories in wars.

**Fahrenheit, Gabriel Daniel (1686-1736)** : German physicist who invented the thermometer using mercury.

**Pope, Alexander (1688-1744)** : English poet, specialist of heroic couplet; wrote *The Rape of the Lock*, *The Dunciad*, 'Essay on Criticism' 'Essay on Man'.

**Voltaire (1694-1778)** : French writer and philosopher; Writings: *Essays on the Morals and Spirit of Nations*; is considered one of the precursors of French revolution.

**Dupleix, Joseph Francis (1697-1793)** : French Governor in Indian colony; could not succeed as the English governor Clive succeeded in India.

**Celsius, Anders (1701-44)** : Swedish physicist and astronomer who invented the centigrade thermometer.

**Franklin, Benjamin (1706-90)** : American statesman, inventor, and scientist; discovered lightning as origin of electricity and invented lightning conductor; helped in framing of the Declaration of Independence in 1773; he negotiated French support; and helped to frame the U.S. constitution.

**Rousseau, Jean Jacques (1712-78)** : French political philosopher and educationist; he aided the romantic movement; helped Diderot his *Encyclopaedia*; his political influence was significant and many of the ideas embodied in his works as *Du Contrat Social* (The social contract—1762) were taken up by revolutionaries. His style and romantic outlook inspired Shelley, Byron, and Wordsworth; he said, "man is free and everywhere he is in chains."

**Frederick II the Great (1712-86)** : King of Prussia (1740-86), who made Prussia a major European power. An exponent of enlightened despotism, he liberalised the Prussian legal code and introduced economic and social reforms that reinvigorated Prussian society and institutions; seized Silesia from Austria and retained it through the resulting Seven Years War. He corresponded with Voltaire and also played the flute.

**Smith, Adam (1723-90)** : Scottish philosopher and political economist. In 1776 published *Wealth of Nations*, an attack on mercantilism that became the bible of free trade movement.



**Kante, Immanuel (1724-1804)** : German philosopher, who made many original and influential contributions to thought; his work was of immense influence in shaping future liberal thought. He believed in the freedom of man to make his own decisions and considered the exploitation of man as the worst evil in 'Perpetual Peace'; he advocated a world federation of states

**Clive, Robert (1725-74)** : English general who helped to lay the foundations of English power in India; joined East India Company as a petty clerk; seized Arcot, his dazzling time came in the victory of Plassey; as a governor he showed administrative capacity. In his later life he was unpopular which led to his suicide

**Goldsmith, Oliver (1728-74)** : Irish poet, dramatist and novelist; a friend of Johnson and Boswell. Best known for his novel *The Vicar of Wakefield* and his play *She Stoops to Conquer*

**Burke, Edmund (1729-97)** : British writer and political philosopher. He advocated the emancipation of the American colonies; also campaigned against the corrupt Indian administration of the East India Company, bringing about the impeachment of Warren Hastings; he believed that the common good was best secured by responsible aristocratic government, so opposed the French revolution.

**Catherine II the Great (1729-96)** : Empress of Russia (1762-96), who gained the throne after a coup in which her unpopular husband, Emperor Peter III was murdered; Catherine's reign marked the expansion of Russian territory as a result of her successful wars against the Turks and the partition of Poland. Influenced by the ideas of the Enlightenment, she had to abandon her scheme to emancipate the serfs in the face of opposition from their masters.

**Washington, George (1732-99)** : US statesman and general; the first president of the USA (1789-97). At the outbreak of the American Revolution (1775-83) he was appointed



commander in chief of the American forces. After winning the final victory at Yorktown (1781) Washington presided over the Constitutional Convention (1787) and was unanimously elected president of the new republic.

**Watt, James (1736-1819)** : British engineer, whose development of the steam engine contributed to the industrial revolution. He devised the unit 'horsepower' and the metric unit of power is named after him.

**Gibbon, Edward (1737-94)** : English historian of the 'Decline and fall of the Roman Empire'

**Jefferson, Thomas (1743-1826)** : US statesman, the third president (1801-09) of the USA. He created the Republican Party, by which the federalist led by Hamilton, were overthrown and helped to draft the Declaration of Independence. He tried unsuccessfully to bring an end to slavery. He negotiated the Louisiana Purchase of 1803. Both he and John Adams died on 4 July 1826, the 50th anniversary of American independence.

**Jones, Sir William (1746-94)** : British jurist, linguist and orientalist, a supreme court judge in Calcutta, published a Persian Grammar, observed resemblances between various languages, this insight led the study of Indo-European languages. Established Asiatic Society of Calcutta.

**Goethe, Johann Wolfgang Von (1749-1832)** : German poet and thinker, made discoveries in anatomy and in botany, wrote many books, however his best known work is *Faust*

**Louis XVI (1754-93)** : King of France, weak meaning but incapable, he saw the outbreak of the French revolution of 1789 in which he and his queen Marie Antoinette were executed

**Mozart, Wolfgang Amadeus (1756-91)** : Austrian composer, his genius lies in the outpouring of all forms of music, in the melodies, his works in instrument



three great symphonies in E. Flat, G. Minor and (called the 'Jupiter'). Three of the greatest operas in musical history are his *Marriage of Figaro*, *Don Giovanni* and the *Magic Flute*.

**Monroe, James (1758-1831)** : US statesman, president (1817-25), his presidential term is known as the era of good feelings; his Monroe Doctrine became a basic principle of US foreign policy; it warned European powers not to intervene in the Americas and declared that the USA would likewise refrain from interference in Europe.

**Nelson, Horatio, Viscount (1758-1805)** : British admiral; destroyed France, naval power in the Mediterranean by his great victory in the battle of the Nile. Again in 1805, he destroyed the French fleet at Trafalgar, unfortunately he got lethal wound in this war. He loved Emma Hamilton, which arose sensation and scandal.

**Malthus, Thomas Robert (1766-1834)** : British clergyman and economist, famous for his population theories. In his 'Essay on the Principle of Population', Malthus argued that mankind is doomed to remain at near-starvation level as growth in food production, which increases at an arithmetical rate, is negated by the geometrical increase in population, called for positive efforts to cut the birth rate, preferably by sexual restraint but, failing that, by birth control.

**Napoleon I (Bonaparte) (1769-1821)** : French emperor and general; rose to prominence in 1795 when he broke the Paris garrison; shortly after married to Josephine (a married woman who had a baby earlier); appointed as a commander for Italian campaign, defeated Austria and controlled Lombardy; led an expedition to Egypt where Nelson destroyed his fleet; brought a coup in 1799 and in 1804 became emperor of France; made a lot of enemy countries; his invasion of Russia (1812) was totally failed; in 1814 he was abdicated and



sent to Elba; emerged again in 1815 to be defeated at Waterloo and exiled to St. Helena. His second wife was Marie Louise of Austria. His standing domestic achievement was legal codification.

**Duke of Wellington (1769-1852)** : British general; gained military experience in India; defeated Napoleon at Waterloo; took some part in politics as a Tory.

**Beethoven, Ludwig Van (1770-1826)** : German composer, never married, gradually became deaf. Recognised by Mozart; above 60 Beethoven's works survive, the symphonies, in number, rank as the greatest ever written.

**Hegel, George Wilhelm Friedrich (1773-1831)** : German philosopher, one of the greatest and most influential thinkers of the 19th century. He followed Kant, Fichte and Schelling but exceeded them all in the scale and erudition of his work. His major works—*The Phenomenology of Mind*, *Encyclopaedia of the Philosophical Sciences* and *The Philosophy of Right*; besides these he left a voluminous lecture, notes on history, religion and aesthetics; died of cholera.

**Wordsworth, William (1770-1850)** : English poet; he collaborated on 'Lyrical Ballads' with Coleridge, a seminal work of the Romantic movement; lived with his wife Mary and his sister Dorothy for the rest of his life; he composed poetry that made him revered as the greatest poet of his time; these include his 'Immortality Ode', many fine sonnets, and pastoral poems. 'Prelude' is his poetic autobiography.

**Coleridge, Samuel Taylor (1772-1834)** : English poet, critic and friend of Wordsworth to whom he published 'Lyrical Ballads'. His poems include the *Ancient Mariner*, *Christabel* and *Kubla Khan*.

**Austen, Jane (1775-1817)** : British novelist; her six major novels are *Sense and Sensibility*, *Pride and Prejudice*, *Mansfield Park*, *Emma*, *Northanger Abbey* and *Persuasion*.

**Bolívar, Simon (1783-1830)** : South American revolutionary; called the liberator. He led the independence movement in the north-west

h American against Spanish rule, aiming at a h American federation. He founded Grand mbia (now Venezuela, Colombia, Panama, dor). Revered as a Latin-American hero.

**Byron, George Gordon (1788-1824)** : En-  
romantic poet. Angered by contemptuous  
ism of his first volume of verse (*Hours of*  
*des*) Bryon retaliated with his satire *English*  
s and *Scotch Reviews*; left England to travel  
pe, described in *Childe Harold's Pilgrimage*,  
pic satire 'Don Juan' is a work which attacked  
crisy and social conventions with subtle irony  
wil. At the end of his life he worked for the  
e of Greek independence; sorrowful married life.

**Faraday, Michael (1791-  
)** : English experimental  
icist; founder of the science  
lectromagnetism; became  
atory assistant to Sir Humphry Davy at the  
il Institution, succeeding him as professor of  
istry in 1833. He set himself the problem of  
ig the connections between the forces of light,  
electricity and magnetism which led to elec-  
agnetism by Maxwell.



**Shelley, Percy Bysshe (1792-1822)** : Brit-  
oet; friend of Byron; was a master of lan-  
e and literary form and a passionate advo-  
of freedom and of new thought. Lived rest of  
fe in Italy; wrote the verse drama 'Cenci' and  
netheus'. Unbound, the elegy *Adonais*, and  
n lyrical poetry, was drowned in a sailing ac-  
t off the Italian coast.

**Carlyle, Thomas (1795-1881)** : Scottish au-  
his individual views pervade his historical  
ng. His best known works include *Sartor*  
rtus, *Heroes and Hero-worship*, *Cromwell's*  
s and speeches, and the *French Revolution*.

**Keats, John (1795-1821)** : English poet who  
short life produced poems notable for rich-  
of imagination and beauty of thought; fell in  
with Fanny Brawne; wrote great poems in-  
g *Hyperion*, *Ode on a Grecian Urn*, *Ode to*  
*Psycho* and *Ode to Nightingale*, besides these  
*Lamia*, *Isabella* and the *Eve of St Agnes*

are milestones. He fought for his life in the last  
time but tuberculosis then had no cure.

**Compte, Auguste (1798-1857)** : French phi-  
losopher, founder of positivism; often said to be  
the founder of sociology.

**Pushkin, Alexander (1799-1837)** : Russian  
writer, whose place in Russian literature ranks with  
Shakespeare's in English. Wrote prolifically in  
many genres, including lyric and narrative verse  
and an epic poem. The *Bronze Horseman*; his  
great verse novel is *Eugene Onegin* and blank  
verse historical drama is *Boris Godunov*

**Balzac, Honore de (1799-1850)** : French  
novelist of wide influence, and author of over eighty  
novels to which he gave the covering title of 'La  
comédie Humaine' depicting the appetites and pas-  
sions of the new social class born of the revolu-  
tion and Napoleon

**Macaulay, Thomas Babington, 1st Baron**  
(1800-59) : English historian, poet and Indian Civil  
servant. His poems include 'Lays of Ancient Rome'  
In India he reformed the education system.

**Disraeli, Benjamin, Earl of Beaconsfield**  
(1804-81) : British statesman and novelist who  
helped to form modern conservatism in England.  
Wrote 'Coningsby' and 'Sybil'; became prime min-  
ister (1868, 1874-80); arranged the purchase of  
shares in the Suez Canal, rival of Gladstone but  
friend of Queen Victoria

**Mazzini, Giuseppe (1805-72)** : Italian natio-  
nalist and revolutionary, the militant leader of the  
*Risorgimento* movement for a united Italian republic

**Anderson, Hans Christian (1805-75)** : Dan-  
ish author, famous for his fairy tales, wrote great  
classics as *The Snow Queen*, *The Little Mermaid*  
and *The Ugly Duckling*

**Mill, John Stuart (1805-73)** : English phi-  
losopher; A member of Bentham's utilitarian  
school, he later modified some of its tenets. His  
main work is 'On Liberty' which advocates social  
as well as political freedom and warns against the  
tyranny of the majority. His 'The Sub-  
Women' supported women's rights. His  
'Principles of Political Economy'. He  
ther of Bertrand Russell

## GENERAL KNOWLEDGE

**Garibaldi, Giuseppe (1807-82)** : Italian patriot and military leader; influenced by Mizzini; fled to South America where he fought for the liberation of local people; commanded a volunteer force on the Sardinian side in the campaign of 1859 and successfully led his 'Red shirts' to victory in Sicily and Southern Italy in 1860-61.

**Gladstone, William Ewart (1809-98)** : British statesman and Prime Minister on four separate occasions. Earlier a conservative joined the Liberal Party later, dominated British political life in the second half of the 19th C. Opposed Disraeli through and through, he caused for the Irish home rule.

**Tennyson, Alfred (1809-92)** : English poet-laureate. 'In Memoriam' reflects his grief for his friend Arthur Hallam. Apart from his lyrics, his longer works include *The Princess*, *Maud*, *Idylls of the King* and *Enoch Arden*.

**Darwin, Charles Robert (1809-82)** : English natural historian, made an extensive voyage to prove his concept. 'Origin of Species by means of Natural Selection, aroused bitter controversy because they conflicted with the biblical creation. In 'The Descent of Man', the another book, Darwin applied his theories to mankind and slowly fundamental principle of biology gained widespread acceptance.

**Lincoln Abraham (1809-65)** : 16th President of the USA, leader of newly formed Republican party, became President in 1861 in which year the confederate states opposed to withdraw from the Union and war broke out. The phrase "government of the people, by the people, for the people" comes from his Gettysburg speech of 1863. He was assassinated in 1865.



**Cavour, Camillo Benso de (1810-61)** : Italian statesman who as the premier of Sardinia, helped to bring about the unification of Italy.

**Browning, Robert (1812-89)** : English poet; after the failure of his autobiographical poem *Pauline*, he wrote several verse dramas and dramatic monologues, including the famous 'My

Last Duchess'. The epic but uneven poem circled 'The Ring and the Book' was his last major work.

**Bismarck Otto Von (1815-98)** : German statesman; was the driving force behind the unification of Germany; could achieve his end through the famous 'blood and iron' policy; as a champion of the new German empire, his main policy was to crush the French power; quarrelled with King Wilhelm II and was forced to resign in 1890.

**Bronte, Charlotte (1816-55)** : English novelist; published under a pseudonym 'Jane Eyre' which was at once successful and was followed by 'Shirley' and 'Villette'. Her sister Emily wrote poetry and also 'Wuthering Heights'. Anne (1820-49), another sister wrote 'Agnes Grey'.

**Marx, Karl (1818-83)** : German philosopher and economist; exiled to England; radical ideas; befriended Engels with whom he wrote 'Communist Manifesto'; wrote 'Das Kapital' a deep analysis of the economic laws of modern society. In 1864, he helped to found the first international. He ranks as one of the original and influential thinkers of modern times.

**Ruskin, John (1819-1900)** : English writer and art critic; first work of art criticism 'The Stones of Venice'. In the 'Stones of Venice', he discussed the gothic style in architecture, denouncing materialism and laissez-faire in 'Unto the Last Thing'.

**Victoria (1819-1901)** : Queen of the United Kingdom of Great Britain and Ireland. Her reign was marked by moral standards, hard-working, and a sense of duty. She won the affection of her subjects in a unique degree through her industrial expansion, growing humanitarian output and in the main progressive policies.

**Engels, Friedrich (1820-95)** : German socialist; lifelong friend of Karl Marx; collaborated in writing the 'Communist Manifesto' of 1848. Through him Marx achieved the edge of English labour conditions.

**Nightingale, Florence (1820-1910)** : English nurse and medical reformer; famous during the Crimean War for her efforts to publicize and improve the sanitary and medical arrangements; she

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## GENERAL KNOWLEDGE

a novel. 'The Picture of Dorian Gray' and a series of brilliant social comedies 'An Ideal Husband', 'The Importance of Being Earnest'. Had to face

**Shaw, George Bernard (1856-1950)** : English playwright; an active member of the Fabian Society; his plays include *Man and Superman*, *Pygmalion*, *Back to Methusalem*, *Saint Joan*, *The Apple Cart*, etc. Nobel prize winner-1925.

**Wilson, Thomas Woodrow (1856-1924)** : American statesman. He was US President 1913-21. Brought America into the first World War and advocated the League of Nations, but was not a successful negotiator at the peace conference and could not carry his country into the League. He introduced prohibition and women's suffrage

**Freud, Sigmund (1856-1939)** : Austrian psychiatrist and pioneer of psychoanalysis; the first to draw attention to the significance of unconscious processes in normal and neurotic behaviour. His publications include 'The interpretation of Dreams', 'The Psychopathology of Everyday Life' and 'Totem and Taboo'.

**Baden Powell (1857-1941)** : Founder of Boy Scouts (1908) and Girl Guides (1910) to promote good citizenship in the rising generation

**Doyle, Sir Arthur Conan (1859-1930)** : British writer. Creator of the detective Sherlock Holmes and his friend and foil, Dr. Watson

**Chekhov, Anton Pavlov (1860-1904)** : Russian dramatist and short story writer, whose plays include 'The Cherry Orchard', and 'Three Sisters'. His stories include *The Steppe*, *The Sleepyhead*, *The Post*, *The Bishop*, etc

**Lloyd George of Dwyfor, 1st Earl (1863-1945)** : British statesman and first World War time premier; took main part in peace-talking in 1921, he conceded the Irish Free State

**Kipling, Rudyard (1865-1936)** : English writer and poet. Born in Bombay; working as a journalist in India he became famous, wrote poems and short stories; his most durable achievements were his tales for children, notably the *Jungle Book*, just so stories and his picturesque novel of India *Kin*. Widely regarded as unofficial poet

laureate in 1907 he became the first Englishman to be awarded the Nobel Prize for literature

**Yeats, William Butler (1865-1939)** : Irish poet and dramatist; a leader of the Irish literary revival; his plays were performed in the Abbey Theatre; best known poems including 'The Second Coming' and 'Sailing to Byzantium'. He was a senator of the Irish Free State and won the Nobel Prize for literature in 1923.

**Rolland, Romain (1866-1944)** : French novelist, dramatist and essayist. He was also a distinguished musicologist, and his best-known work *Jean Christophe* concerns a German composer. His philosophical idealism, much influenced by Tolstoy, was expressed in numerous volumes of essays and biographies. He won the Nobel Prize in 1915.

**Curie, Marie (1867-1934)** : Polish chemist renowned for her research into radioactivity. Married to Pierre Curie (1859-1906), a French physicist. Madame Curie noticed radiation from the pitchblende ore. The Curies, together with Becquerel, were awarded the 1903 Nobel Prize for physics and for her discovery of radium and polonium she won the 1911 Nobel Prize for Chemistry. Pierre Curie died in a road accident while working. Marie Curie died as a result of the radiation to which she had been exposed.

**Sun Yat-Sen (1867-1925)** : Chinese revolutionary, idealist and humanitarian, generally considered to be the 'Father of the Revolution'. For some time, he was the leader of the Chinese Nationalist Party and overcame the Manchu and became president.

**Galsworthy, John (1867-1933)** : English novelist and playwright, author of 'The Forsyte Saga', a series of novels dealing with the life of an upper middle-class family. Nobel Prize winner in 1933.

**Gorky, Maxim (1868-1936)** : Russian novelist. His hard nomadic early life is recorded in his autobiographical trilogy 'Childhood', 'My World' and 'My Universities'; established his reputation with romantic short stories and followed these with several novels and plays, including 'Mother' and 'The Lower Depths'.



series of five-year plans from 1929 onwards made Russia an industrial power. On the German invasion in 1941, he assumed the military leadership and later attended war conferences.

**Jinnah, Mohammed Ali (1876-1948)** : Indian politician, Pakistan's first governor general from 1947. He was president of the Muslim League 1916, 1934-48; by 1940 was advocating the need for a separate state of Pakistan; at the 1946 conference in London he insisted on the partition of British India into Hindu and Muslim states; revered as 'the father of Pakistan'.



**Ataturk, Mustafa Kemal (1881-1938)** : Revered as 'the father of modern Turkey'; Turkish politician and general, first President of Turkey from 1923. After World War I, he established a provisional rebel government and in 1921-22 the Turkish armies under his leadership expelled the Greeks who were occupying Turkey. He was founder of modern republic, which he ruled as virtual dictator, with a policy of consistent and radical westernisation.

**Picasso, Pablo Ruiz (1881-1973)** : Spanish painter; settled in Paris; perhaps the best-known single work in his mural 'Guernica', painted at the time of the Spanish civil war, expressing the artist's loathing of fascism and the horrors of war. His genius also found scope in sculpture, ceramics, the graphic arts, etc.



**Roosevelt, Franklin Delano (1882-1945)** : 32nd President of the US 1933-45. His New Deal successfully lifted the US out of the Great Depression, and after the American entry into the Second World War he played a vital part in the co-ordination of the allied war efforts. In 1940, he became the first President to enter the third term in office and four years later he was once again successful at the polls, but died of a cerebral haemorrhage several months later.

**Mussolini, Benito (1883-1945)** : Fascist

dictator of Italy (1922-43). From 1935 he embarked on an aggressive foreign policy (Abyssinia and Spain) which was at first successful and in June 1940 he entered the war on the side of Hitler. Defeat in North Africa and the invasion of Sicily caused the collapse of his government. He was shot dead by partisans while trying to escape to Switzerland.

**Attlee, Clement Richard (1883-1967)** : British statesman; Leader of the Labour Party 1935, became Prime Minister in 1945; his administration was notable at home for a series of measures setting up the modern welfare state and abroad for progressive withdrawal from colonial territories.

**Malinowski Bronislaw Kaspar (1872-1942)** : Polish anthropologist, who initiated the technique of what came to be known as 'participant observation'—leaving for an extended period among the people he was studying (those of the Trobriand Islands, now part of Papua New Guinea), and participating in their activities, gathering information.

**Bohr, Niels Henrik David (1885-1962)** : Danish nuclear physicist whose researches on the structure of the atom gave him great authority in the world of theoretical physics. With Rutherford he applied the quantum theory to the structure of atomic processes. Nobel Prize 1922.

**Chiang Kai-shek (1887-1975)** : Chinese leader who achieved military prominence as a general in the army of Sun Yat-sen and after his death in 1925 launched a campaign to unify China. In the 1930s he concentrated more on defeating the Chinese communists than on resisting the invading Japanese; became unpopular after being defeated by Communists; forced to abandon mainland China in 1949, he set up a separate Nationalist Chinese State of Taiwan.



**Eliot, Thomas Stearns (1888-1965)** : Anglo-American poet, critic and dramatist. After moving to the USA, became British subject. 'The Waste Land' is his best-known work, although 'Four Quartets' is generally considered to be his most major poem.



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Chinese Communist of the People's Republic of China 1949-58; for long the effective ruler of China, a poet as well as a political theorist, was responsible for China's development as a major power.

**Laski, Harold Joseph (1893-1950)** : British political theorist; became professor of political science at the London school of Economics, a socialist, he was influenced by the theories of Burke and Mill but became progressively more Marxist in outlook; his writings include 'Authority in the Modern State' and 'Faith, Reason, Civilisation'.

**Khrushchev, Nikita Sergeyevich (1894-1971)** : Soviet statesman, first Secretary of the Soviet Communist Party (1953-64), and Prime Minister (1958-64); started destabilisation. This led to separatist activity among the U.S.S.R.'s satellites; survived this crisis and strengthened his position at home with a policy of decentralisation of industry; ultimately was ousted by Brezhnev and Kosygin.

**Khan, Liaquat Ali (1895-1951)** : Pakistan's first Prime Minister; born in Agra (India); leader of the Muslim League (1946), assassinated.

**Lie, Trygve (1896-1968)** : Norwegian Labour politician and international civil servant; the secretary general of the UN (1946-52). At the time he dealt with the first Arab-Israeli war and UN armed aid to South Korea in the Korean War. Soviet opposition to his Korean policies resulted in his resignation.

**Chou En-Lai (1898-1976)** : Chinese communist statesman; Prime Minister (1949-56); as minister of foreign affairs (and concurrently Prime Minister) he increased China's international influence; his greatest triumph of mediation was during the Cultural Revolution in China, when he worked to preserve national unity and the survival of government against the forces of anarchy.

**Hemingway, Ernest Miller (1899-1961)** : American novelist, short story writer, and foreign correspondent; author of 'The Sun Also Rises',



'For Whom the Bell Tolls', 'The Old Man and the Sea', 'Death in the Afternoon', etc, received Nobel Prize for literature, 1954.

**Mountbatten of Burma, Louis, 1st Earl (1900-79)** : British admiral and colonial administrator; he was supreme Allied commander in South Asia (1943-45), retaking Burma; as Viceroy of India (1947) he presided over the transfer of power to India and Pakistan and was the governor general of India (1947-48); died in Ireland, the victim of an IRA bomb.

**Disney, Walter Elias (1901-66)** : US film producer and animator; his most famous cartoon character was Mickey Mouse; opened Disneyland, an amusement park in California in 1955.

**Hirohito (1901-89)** : Emperor of Japan (1926-89), the 124th in direct lineage; his reign coincided with rapid militarisation and the aggressive wars against China, Britain and the USA, which ended with atomic bombs on Hiroshima and Nagasaki; under American occupation. Hirohito in 1946 renounced his mythical divinity and most of his powers, and became a democratic constitutional monarch.

**Ho Chi Minh, Originally Nguyen Thanh (1892-1969)** : Statesman, Prime Minister (1954-55) and President (1954-69) of North Vietnam; he led the Vietminh independence movement in 1941 and directed the successful military operations against the French (1946-54) regime, becoming president of North Vietnam. He was leading force in the war between North and South Vietnams during the 1960s.

**Orwell, George, pseudonym of Eric Arthur Blair (1903-50)** : British novelist and essayist born in Motihari, India, a BBC war correspondent during 2nd World War; best known for his satire of totalitarian ideology in 'Animal Farm' and the prophetic novel, 'Nineteen Eighty Four' written in 1949.

**Greene, Graham (1904-91)** : British novelist 'The Man Within' his debut; his novels, 'The Power and Glory', 'The Heart of the Matter', 'The End of the Affair', 'Our Man in Havana', 'The Comedians', 'The Honorary Consul', like his plays 'The

Complaisant Lover and films *Fallen Idol* and *The Third Man* deal with moral problems in a modern setting, widely regarded as the greatest English novelist of the second half of the century.

**Hammerskjold, Dag (1905-61)** : Swedish statesman, who became secretary general of the United Nations (1953-61); he was Swedish foreign minister; at the UN, he helped to set up the Emergency Force in Sinai and Gaza (1956), and worked for conciliation in the Middle-East (1957-58). He was awarded the 1961 Nobel Peace Prize after his death in an aircraft near Ndola, Zambia, while engaged in negotiations over the Congo crisis.

**Sartre, Jean-Paul (1905-80)** : French philosopher and writer. He founded the journal 'Les Temps Modernes' and became a leading public exponent of existentialism; author of 'Being and Nothingness', the play 'No Exit', etc; awarded Nobel Prize but declined.

**Sholokhov, Mikhail Aleksandrovich (1905-84)** : Russian novelist; best known for his novel tetralogy 'Tikhon Don' (1928-40, trans. Quiet Flows the Don); received Nobel Prize for literature in 1955.

**Brezhnev, Leonid Ilich (1906-82)** : Russian statesman, general secretary of the Soviet Communist Party (1954-82), and president of the Supreme Soviet (1977-82); he ousted Khrushchev with the help of Kosygin and gradually emerged as the most powerful figure in the Soviet Union the first to hold simultaneously the positions of general secretary and President.

**Ayub Khan, Mohammed (1907-74)** : Pakistani statesman; President (1958-69). After a distinguished military career he became defence minister in 1954. Following President Iskander Mirza's coup d'état in 1958 Ayub became chief martial law administrator and then ousted Mirza to become President. He negotiated (1966) the ceasefire agreement with Shastri following the Indo-Pak war of 1965. He was forced to resign following civil unrest in East Pakistan.

**Nkrumah, Kwame (1909-72)** : Ghanaian statesman, prime minister (1957-60), and president

(1950-66); with a policy of non-Cooperation with the British took the Gold Coast to independence as Ghana in 1957; so called 'the father of nation' and 'Gandhi of Africa'; he was deposed by a military coup while visiting China; sought asylum in Guinea where he was given the status of Co-head of state, and died in Bucharest.

**Thant, U (1909-74)** : Burmese diplomat, secretary general of the UN (1962-72), elected after serving as acting secretary general following the death in office of his predecessor Dag Hammerskjold; helped to resolve the US-Soviet crisis over the Soviet installation of missile bases in Cuba.

**Begin, Menachem (1913-92)** : Russian born Israeli statesman, an active Zionist; in 1948 founded the Herut Freedom Movement became chairman of Herut Party, attended peace conferences in Jerusalem and at Camp David at the intervention of President Carter; in 1978 he and President Sadat of Egypt were jointly awarded the Nobel Peace Prize, resigned the premiership in 1983.

**Brandt, Willy, originally Kart Herbert Frahm (1913-92)** : West German statesman and Chancellor (1969-74); an anti-Nazi and pro-western leader chairman of Social Democrat Party became Chancellor in a coalition government with the Free Democrats; awarded Nobel Peace Prize in 1971, resigned as Chancellor when it was revealed that one of his aides was an East German spy.

## GENERAL KNOWLEDGE

programme to Latin America, the Cuban missile crisis, in which he forced Soviet withdrawal of offensive atomic missiles, confrontation with Russians concerning the Berlin wall, and encouragement of full civil rights for blacks; received Pulitzer prize, 1957, for collection of essays 'Profiles in Courage'; was assassinated in Dallas, Texas.

**Mandela, Nelson (Rolihlahla) (b. 1918- )** : South African statesman and leader, called Gandhi of South Africa, struggled with the white supremacy for a long time for which he has imprisoned for 27 years (1964-90); became first black President of South Africa (May 1994); only under his leadership, African National Congress led the South Africans to a non-racist democracy; adopted new multiracial constitution (1993), marking the complete end of apartheid, and was awarded the Nobel Peace Prize with F.W. de Klerk; awarded Bharat Ratna (1990); has recently retired from active politics



**Waldheim, Kurt (1918- )** : Austrian diplomat and President (1986-92), UN Secretary General (1972-81); his presidential candidature was controversial, because of claims that he had lied about his war time activities, and been involved in anti-Jewish and other atrocities, but he denied the allegations, and despite international pressure, continued with his campaign

**Solzhenitsyn, Alexander IS ayeovich (1918- )** : Russian novelist, wrote several anti-Stalin books for which he had to face exile, awarded Nobel Literature Prize in 1970; could receive in 1974; wrote 'The Gulag Archipelago' a factual account of the Stalinist terror for which he was arrested and exiled, lived in USA till the earlier charge of treason was not withdrawn, returned to Russia in 1994.

**Nasser, Gamel Abdel (1918-70)** : Egyptian statesman, Prime Minister (1954-56) and President (1956-70); his nationalisation of the Suez Canal led to an unsuccessful Israeli and Anglo-French attack on Egypt (1956), after which he

was established as a leader of the Arab world associated Nehru and Tito in establishing the Non-Aligned Movement.

**Sadat, (Mohammed) Anwar el (1918-81)** : Egyptian statesman and President (1970-81); moved Egypt from the Soviet influence to the US; he met the Israeli Premier in Jerusalem (1977) and at camp David, USA (1978), in which year he and Begin were jointly awarded the Nobel Peace Prize. Following criticism by other Arab statesmen and hardline Muslims, he was assassinated in Cairo by extremists.

**Attenborough, Sir Richard (1923- )** : British film actor, director and producer; got debut 'In Which We Serve' (1942), became a director in 1969 with 'O what a Lovely War', followed by such varied major epics as 'A Bridge Too Far', Gandhi (1982), which won eight Oscars, 'A Chorus Line', 'Cry Freedom' and 'Chaplin'. Was knighted in 1976.

**Ziaul Haque, General Mohammed (1924-88)** : Pakistani statesman, President (1978-88); he was chief of the army staff when he led the coup that overthrew Bhutto, becoming chief martial law administrator, refused world-wide appeal to commute Bhutto's death sentence for conspiracy to murder, died in an air crash, possibly as a result of sabotage.

**Thatcher, Margaret (Hilda) (b. 1925)** : British conservative Prime Minister (1979-90); under her leadership, the conservative Party moved towards a more 'right wing' position, and British politics and society became more polarised than at any other time since World War II; instituted the privatisation of nationalised industries and national utilities, elected for the third term in 1987; more popular abroad than at home; she resigned as a result of the controversy which followed her opposition to full monetary and economic union with Europe.



**Amin (Dada) Idi (b. 1925)** : President of

**Uganda (1971-79):** usurped presidency with the help of army; massacred thousands of tribesmen, expelled Israeli citizens, other Asians and the British High Commissioner; foreign-owned business and estates were seized and mass arrests organised; throughout his presidency there were continual reports of widespread atrocities; deposed.

**Elizabeth II (b.1926) :** Queen of the United Kingdom (1952- ) and head of the Commonwealth; married Philip in 1947 who was styled as Duke of Edinburgh; they have three sons Charles, Andrew and Edward and a daughter Anne.

**Monroe, Marilyn, professional name of Norma Jean Baker (1926-62) :** American film actress and sex symbol; considered to be *venus of the century*; an illegitimate child, suffering wretchedly in early life, promoted as a sex symbol in such films as 'Niagra' and 'Gentlemen Prefer Blonds', she later developed a real acting talent and ability as a comedienne; her third husband was Arthur Miller and her last film appearance was in 'The Misfits' (1961), which he wrote; died of an overdose of sleeping tablets.

**Castro (Ruz), Fidel (b.1927) :** Cuban revolutionary, Prime Minister (1959- ), and President (1976- ), ousted Batista government; established 'Marxist-Leninist' communist government; overthrew the US economic dominance; got help from former USSR; a champion of third world countries, gave them voice through non-aligned movement.

**Guevara, Che (1928-67) :** Argentine revolutionary leader; played an important role in the Cuban revolution (1955-59), after which he held government posts under Castro, he left Cuba in 1965 to become a guerrilla leader in South America, and was captured and executed in Bolivia.

**King, Martin Luther Jr. (1929-68) :** American clergyman, non-violent civil rights and Negro integration leader, Nobel Peace Prize (1954) for his support of the principle of non-violence in the coloured peoples struggle for civil rights; considered as Gandhi of USA, assassinated.



**Arafat, Yassir (b.1929) :** Palestinian leader, President of Palestine Liberation Organisation (PLO); recognised the state of Israel and denounced terrorism (1988); signed a peace agreement between the PLO and Israel, leading to the award of the 1994 Nobel Peace Prize (jointly with Robin & Peres); following Israel's withdrawal from the West Bank and Gaza Strip he was elected first President of the new Palestinian National Authority in 1995.

**Armstrong, Neil Aldon (b.1930) :** US astronaut, the first man to walk on the moon on 21 July 1969; as he stepped onto the moon he said, 'That's one small step for a man, one giant leap for mankind.'

**Gorbachev, Mikhail (b.1931) :** Soviet politician; became General Secretary of the Communist Party in 1985; his accession marked the end of the 'old guard' leadership; identified with policies of glasnost (openness) and perestroika (restructuring), President of the USSR from 1988 until his resignation in 1991; could not handle properly the revolutionary position; led to the collapse of the USSR; Nobel Peace Prize, 1990.

**Tutu, Desmond Mpilo (b.1931) :** South African churchman; Archbishop of Cape Town, 1985-95 Nobel Peace Prize, 1984; outstanding opponent of apartheid.

**Soyinka, Wole (b.1934) :** Nigerian dramatist and poet; plays—The Lion and the Jewel, A Scourge of Hyacinths etc. novels — The Inland Sea, The Man Died etc. opposed military regime, awarded Nobel Prize for literature in 1986.

**Taylor, Elizabeth (b.1932) :** US film actress born in England; her films include Cat on a Hot Tin Roof and Who is Afraid of Virginia Woolf? in both of which she co-starred with Richard Burton, whom she married twice.

**Loren, Sophia (b.1934) :** Italian film actress; possessed international stardom in such films as Two Women, Marquise de Sade and Camille; Crossing married to Italian film producer Carlo Ponti; became a French citizen.

**Garbo, Greta (1905-93) :** Swedish actress; her exceptional beauty and dramatic command of



much to her portrayal of tragic heroines in such films as *Grand Hotel*, *Queen Christina*, *Anna Karenina* and *Camille*; as a comedienne she excelled in 'Ninotchka'.

**Rahman, Sheikh Muzibur (1920-75) :** Bangladeshi nationalist politician; President 1975; arrested several times for campaigning for the East Pakistan; won the elections in 1970 as leader of the Awami League; became Prime Minister of newly born country Bangladesh with the help of India, assassinated.

**Bhutto, Zulfikar Ali (1928-79) :** Pakistani statesman; formed Pakistan People's Party; became President (1971-73) and Prime Minister (1973-77); ousted by a military coup and executed.

**Bhutto, Benazir (b.1953) :** Pakistani politician, Prime Minister (1988-90, 1993-96); daughter of former Prime Minister Bhutto, she became the first female leader of the Muslim country.

**Dalai Lama:** The title of the spiritual and political ruler of Tibet; the present Lama, 14th in line, is living in exile in India from 1959 after a failed uprising against the occupying Chinese, awarded Nobel Peace Prize 1989

**Gagarin, Yuri Alekseevich (1934-68) :** Soviet cosmonaut, who on 12 April, 1961 became first person to orbit the earth, he remained in orbit for 89 minutes, reaching a height of about 301 km; he died when a plane he was testing crashed.

**Tereshkova, Valentina Vladimirovna (b.1937) :** Soviet Cosmonaut, in 1963, aboard Vostok 6, she became the first woman in space, completing 48 orbits of the Earth

**Bradman, Sir Donald George (b.1908) :** Australian cricketer; the most successful batsman of his era; he scored 117 centuries in 338 first class innings and Test matches, averaged 99.94 runs in test, scored 29 test centuries and 6996 test runs, his best score was 452 not out (1929-30); as Australian captain (1936-48) he never lost a series and on retirement (1949) he became the

administrator of the game.

**Sober, Sir Garfield (b.1936) :** West Indian cricketer, who captained the West Indies and Nottinghamshire; one of the greatest all rounders; knighted in 1975.

**Pele (Edson Aramets do Nascimento) (b.1940) :** Legendary Brazilian footballer; the greatest inside forward of his time; scored over 1300 goals, in 1994 he was appointed special minister for sports and in 1997 he was awarded an honorary British knighthood.



**Charles (Philip Arthur George) (b.1948) :** Prince of Wales and heir-apparent to the throne of United Kingdom as the eldest son of Elizabeth II, married to Diana (1981) became highly controversial for his extra-marital affair and estranged relation with his wife.

**Diana, Princess of Wales (1961-97) :** Former wife of Prince Charles, married in 1981, they separated in 1993 and divorced in 1996; killed in a car crash in Paris, with her companion Dodi Fayed; an icon of fashion and a woman of remarkable beauty, she enhanced the images of many charities, specially those concerned with the victims of AIDS and landmines; became controversial with accepting frailties in public and denounced her husband for his extra-marital relation with Mrs. Parker Bowles; her premature death caused an unprecedented display of public grief.

**Jackson, Michael (b.1958) :** US pop star his solo recordings include 'Thriller', 'Bad' and 'Torture', he was alleged for the sexual abuse of a minor; he was married (1994-96) to Elvis Presley daughter, Lisa Marie.

**Madonna (Madonna Louise Veron Ciccone) (b.1958) :** US lady pop singer and actress, who in 1991 became the highest-paid entertainer in history; her album 'Like a Virgin' established her as an international star; subsequent albums included 'True Blue' and 'Erotica'; she also appeared in such films as 'Dick Tracy', 'A League of their Own'; in 1992 she produced 'Sex' controversial book of erotic photographs. ■

# IMPORTANT INDIAN PERSONALITIES

**Abdali, Ahmed Shah :** An Afghan chief belonging to the Durrani clan who occupied the throne of Afghanistan in 1747 after the assassination of Nadir Shah. He ruled till his death in 1773. During this period he invaded India eight times, occupied the Punjab and won a tremendous victory over the Marathas in the Third Battle of Panipat in 1761.

**Abdul Gaffar Khan :** He was known as the 'Frontier Gandhi'. He was a nationalist Muslim leader of the North-West Frontier Province. He first started a militant organisation known as the 'Red Shirt', and later on joined the non-violent Civil Disobedience Movement started by Mahatma Gandhi.

**Abdul Hamid Lahori :** Official historian at the time of Shah Jahan. His work called *Padshahnamah* is an authoritative account of the reign of Shah Jahan.

**Abdullah Barha Sayyid :** The elder of the two Sayyid brothers who controlled the administration of the Mughal empire from 1713 when they enthroned Farrukhsiyar till their fall in 1719. In 1719 they deposed and killed Emperor Farrukhsiyar and in the same year placed their fifth protégé Muhammad Shah. Abdullah was poisoned to death in 1722.

**Abdur Rahman, Amir :** He was placed on the throne of Afghanistan in 1880 with the support of the English after the Second Afghan War. It was during his time that the Durand Line was drawn up in 1893 marking the Indo-Afghan boundary. He died in 1901.

**Abdur Rahim, Khan-i-Khanan :** He was son of Bairam Khan. He rose high in Akbar's service, became the *Khan-i-Khanan* or premier nobleman in his court, and took part in many

campaigns. He was a literary man, translated Babur's *Memoirs* into Persian and patronised literary men like Abdul Baqi who wrote the *Masir-i-Rahimi*.

**Abdur Razzak Lari :** He was a faithful noble and general of Abdul Hasan, the last Sultan of Golkunda. When in 1678, Aurangzeb made the final attack on Golkunda, he tried his best to bribe Abdur Razzak but he spurned all offers of temptation and bravely fought in the defence of Golkunda.

**Abdur Razzak of Herat :** He came to India in 1448 as the ambassador of Sultan Shahruh of Persia. He first came to Calcutta and proceeded to Vijayanagar of which he has left an interesting account.

**Abdus Samad :** He was Akbar's drawing master who was later on put in charge of the mint. He was a celebrated artist.

**Abul Fazl :** Son of Shah Mubarak, he was a profoundly learned man with untiring industry and commanding intellect. He was a faithful officer of Akbar and was for many years his confidential secretary and adviser. He wrote *Ain-i-Akbari* and *Akbarnamah*. He was murdered in 1602 by a Bundela chief at the instigation of Prince Salim.

**Abdul Hasan :** He was the last Kuli-Shah Sultan or king of Golkunda. He was defeated and deposed by Mughal Emperor Aurangzeb in 1657.

**Achyuta :** He was one of the many kings of Aryavarta who, according to Allahabad inscription, was defeated and deposed by Samudragupta (A.D. 330-75). Achyuta was probably a king of Ahichchhatra, modern Etam Nagar, in the Bareilly district.

**Achyutaraya :** King of Vijayanagar from 1529 to 1542. He was the brother and successor of Krishnadevaraya.

## GENERAL KNOWLEDGE

resses of Mughal and Raichur to Ismail Adil Shah, the Sultan of Bijapur.

**Adali** : Nephew of Sher Shah, who succeeded Sher Shah's son and immediate successor Islam Shah in 1554. His full title was Muhammad Adil Shah. He retired to eastern India after the Second Battle of Panipat (1557) and was subsequently killed in a conflict with the king of Bengal.

**Adam, John** : A senior member of the Governor-General's Council. He officiated as Governor-General for seven months (January-July 1823). During his short administration, John Silk Buckingham, editor of the *Calcutta Journal*, was expelled for undue criticism of public officials. This marked the advent of the Press into the public life of India.

**Adham Khan** : Son of Maham Anaga, chief nurse ranking as a foster mother of Emperor Akbar. He joined with others in rousing the anger of Akbar against Bairam Khan who was dismissed by Akbar in 1560. In 1562 Akbar had Adham Khan thrown over the battlements and thus executed.

**Adhisima Krishna** : Pre-historic king of Hastinapura, mentioned in the *Vayu* and *Matsya* Puranas. He was the great-great-grandson of Parikshit, the famous Kuru king who came to the throne after the Bharata War.

**Adhirajendra** : The last Chola king in the direct line of succession from Parantaka. He ruled only for three years (1072-74) and was assassinated. He was a Saiva by faith and was so hostile to the famous Vaishnava saint Ramanuja that the latter had to stay away at his residence at Srirangam, during the reign of Adhirajendra.

**Adisura** : He was king of Gaura or Lakshnavali who sought to revive in Bengal the Brahmanical religion which had suffered from Buddhist predominance. He is believed to have imported into Bengal five Brahmans from Kannauj, who taught orthodox Hinduism and became the ancestor of Radhiya and Varendra Brahmans of Bengal.

**Aditya** : The earlier Chola raja (A.D. 880-907) who defeated Aparajita Pallava, put an end

to the Pallava supremacy and thus facilitated the foundation of the Chola supremacy by his son and successor.

**Adityasen** : Son of Madhava Gupta, he was the sovereign of Madhyadesha in A.D. 672. He performed an asvamedha (horse-sacrifice) ceremony and gave his daughter in marriage to Bhogavarmam Maukharī.

**Adityaramsa** : He was a king of Indraprastha whose son was Kaundinya. He who founded the royal dynasty of Kambuja.

**Afzal Khan** : A Muhammadan general whom the Sultan of Bijapur sent in 1659 with an army of 10,000 men to suppress Shivaji who was then fast rising into power. Shivaji killed Afzal.

**Agathokles** : An Indo-Greek prince who ruled in the Taxila region (C 190-180 B.C.). Some of his coins have been found in that locality. They contain his name in Greek and a kind of Prakrit.

**Agésilos** : A Greek who was the superintendent engineer of the Kushan king Kanishka. His name has been found mentioned in the celebrated relic-casket found amongst the ruins of the relic tower that was built by Kanishka's at Peshawar.

**Agnimitra** : He was the son and successor of Pushyamitra, the founder of the Sunga dynasty. He defeated his southern neighbour, the Vidarbha (Berar) and extended the Sunga empire up to the Warda river. He succeeded his father in about 149 B.C. His love affair with the heroine of Kalidasa's drama *Malvika Agnimitra* is the theme of the drama.

**Ahalya Bai**, the Rani : She was the daughter-in-law of Malhar Rao Holkar (d. 1764). On the latter's death Ahalya Bai became the ruler of the vast Holkar state with headquarters at Indore and administered the state successfully till her death in 1795.

**Ahavamalla** : It was the title of King Somasvara I of Kalyani (Kalyan). He restored the power and prestige of the Chalukya dynasty by defeating the contemporary Rajadhiraja in the battle of Kalyan. He also stormed Dhara in Malwa and defeated Ahmad Shah Bahmani.

Chroni



the Delhi Sultan Muhammad bin Tughluq (1325-51), and was employed in the Deccan. Before his death in February 1358, he left a kingdom extending from the river Wain Ganga on the north to the river Krishna on the south.

**Alauddin II :** He was the tenth Sultan of the Bahmani dynasty of the Deccan. He ruled from 1435 to 1457, fought a war with Deva Raya II, the neighbouring Hindu King of Vijayanagar and forced him to make a peace favourable to the Sultan.

**Alauddin Hussain Shah :** He was the Sultan of Bengal from 1493 to 1518 and founder of the Hussain Shahi dynasty of Bengal. He was a Sayyid of Arab descent and proved to be a very successful and popular king of Bengal.

**Alauddin Khilji :** Sultan of Delhi (1296-1316), was the nephew and son-in-law of Jalaluddin Khilji, the founder of the Khilji dynasty of Delhi. Alauddin led the first Muhammadan invasion into the Deccan in 1295 and invaded the Kingdom of Devagiri then ruled by Ramachandradeva of Yadava dynasty. Alauddin's other conquests were; Gujarat (1297), Ranthambhor (1301), Chittaur (1303), Malwa (1305), and thereafter Ujjain, Dhar, Mandu and Chanderi.

**Alauddin Masud :** The seventh Sultan of the Slave dynasty. He was the son of Rukn-ud-din, the second son and immediate successor of Sultan Iltutmish (1211-36). He ascended the throne two years after the deposition of his aunt Sultana Raziya (1236-40).

**Alam Shah II or Shah Alam II :** He was the seventeenth Mughal emperor (1759-1806). His name Ali Daur was the name by which he was known before he succeeded his father emperor Alamgir II in 1759. He accepted from the East India Company a pension which he enjoyed till his death in 1806.

**Alamgir II :** He was the sixteenth Mughal emperor (1754-59). Son of the eighth Mughal emperor Jahandar Shah (1712-13), he was placed on the throne in 1754.

**Alberuni (A.D. 973-1048) :** He was a native of Khiva. He was brought to Ghazni in Sultan Mahmud's time (A.D. 997-1030). He was a

profoundly learned scholar. His famous work entitled *Tahkik-i-Hind* ('An Enquiry into India') is a truly scientific treatise.

**Ali Adil Shah I :** He was the first Sultan (1557-80) of the Adil Shahi dynasty of Bijapur. In 1558 he made an alliance with the Hindu kingdom of Vijaynagar and invaded Ahmednagar.

**Ali Adil Shah II :** He was the eighth Sultan (1656-73) of the Adil Shahi dynasty of Bijapur. He never succeeded in limiting the growing power of Shivaji, the Maratha leader, and pitch-forked between the Mughals and the Marathas. He could only maintain a precarious throne till his death in 1673.

**Ali Barid :** He was the third ruler of the Barid Shahi dynasty of Bidar, an off-shoot of the Bahmani kingdom. He ascended the throne in A.D. 1539 and was the first of the Barid Shahi rulers to assume the title of Sultan.

**Ali, Muhammad :** Prominent Muhammadan scholar and political leader. His translation of the Quran is a most authoritative version of it in translation. He along with his brother Shaikat Ali took a prominent part in the nationalistic political movement in India in the years following the First World War. He was a leader of the Khilafat movement. He became president of the Indian National Congress in 1923.

**Ali Naqi :** He was the *Diwan* of Gujarat while Emperor Shah Jahan's fourth son, Prince Murad, was the governor of the province. It was on a trumped up charge of having murdered Ali Naqi that Murad was executed in 1661.

**Ali, Muhammad Ruhela :** He was the founder of the power of the Ruhelas in Rohilkhand lying at the base of the Himalayas to the north-west of Oudh.

**Ali Shah :** The Seventh Sultan (1416-20) of Kashmir. He was succeeded by his famous brother Sultan Zain-ul-Abidin (1420-70) known as the Akbar of Kashmir.

**Alivardi Khan :** Originally known as Mirza Muhammad Khan, was raised from obscurity by Shuja-u-din, Nawab of Bengal (1725-39), and came to be known as Alivardi. In 1740 he occupied

the *masnad* of the Nawab of Bengal. He died in 1756 and was succeeded by his daughter's son, Siraj-ud-daula.

**Allam! Sadullah Khan :** The Prime Minister of Emperor Shah Jahan, was efficient as an administrator as well as a general and successfully led the Mughal army on various occasions.

**Alp Khan :** He was appointed by Sultan Ala-ud-din Khilji as governor of Gujarat after its conquest in 1297.

**Alp Khan :** He was the son and successor of Ditawar Khan Ghuri who set himself up as the independent Sultan of Malwa in 1401. Alp Khan assumed the title of Hushang Shah and ruled till his death in 1435.

**Amar Singh :** Rana of Mewar (1597-1620) Son and successor of the famous Rana Pratap of Mewar, he tried to carry on the heroic war of independence against Emperor Akbar, but was defeated after a gallant resistance in 1599.

**Amar Singh Thapa :** General of the king of Nepal during Anglo-Nepal war of 1814-16, bravely defended the fort of Malaon against the British army led by General Ochterlony.

**Amardas :** The third Guru (1552-74) of the Sikhs, was a man of high character and did much to promote the Sikh religion.

**Ambaji :** A Maratha leader who operated over Rajputana. In the course of eight years (1809-17) he extracted about two crores of rupees from Mewar alone.

**Ambar, Matik :** An Abyssinian slave who settled in Ahmadnagar, rose to be its chief administrator sometime after the death of Chand Sultan. He organised the resources of Ahmednagar in resisting the attempts of Emperor Jahangir to conquer Ahmadnagar.

**Ambedkar, Dr. Bhimrao Ramji :** A prominent leader of the Scheduled Castes. Built up a party of the untouchables, became a member of the Constituent Assembly and piloted through it the Indian Constitution Act which declared India to be Republic. He also piloted the Hindu Code through the Indian Legislature.

**Ambhi :** He was the king of Taxila in 327-26

B.C. when Alexander the Great invaded India. His territories lay between the Indus and the Jhelum and he was a great rival of King Porus whose dominions lay to the east of the Jhelum.

**Amin Khan :** He was the Wazir at Delhi after the fall of the Sayyid Brothers early in the reign of Emperor Muhammad Shah (1719-48). He died in 1721.

**Amir Ali, Syed (1849-1928) :** He was the first Indian to be appointed a judge of Privy Council. Beginning his career as an advocate he was raised to the Bench in 1890 and continued to be judge of the Calcutta High Court till 1904. His works included *History of the Saracens* and several legal treatises.

**Amir Khan :** A general under Emperor Aurangzeb, was the governor of Kabul for 21 years (1677-98).

**Amir Khusrau :** Assumed 'Parrot of India', was a famous poet and author who wrote in poetry and prose and also composed music. He enjoyed the patronage of successive Sultans of Delhi from Balban to Ghiyas-ud-din Tughluq. He died in 1324-25. His works include *Tughluqnama* and the *Tankh-i-Akbar*.

**Amir Umar :** Son of the sister of Sultan Ala-ud-din Khalji, rose in revolt against the Sultan in Badaun and was easily suppressed and executed.

**Amoghavarsha II :** The grandson of the grandson of Amoghavarsha I. He ruled only for a year (A.D. 917-18) and was deposed by his brother Govinda IV (A.D. 918-34).

**Amoghavarsha III or Vaddiga :** The second son of the grandson of Amoghavarsha II. He succeeded Govinda IV in A.D. 934 and ruled for five years (A.D. 934-39).

**Amrit Rao :** He was an adopted son of Raghunath Rao (Raghoba), the second son of Peshwa Bajirao I, who ruled as Peshwa for only one year (1773).

**Anandapal :** Son and successor of Raja Japal (or Jayapala) of the Hindu Shahiya dynasty of Uddhandapur (Wadhand) or Chand on the Indus. He ascended the throne in about A.D. 1002. Sultan

Mahmud of Ghazni invaded his territories in A.D. 1008.

**Ananda Ranga Pillai :** He was the *dubash* of Dupleix, kept an account of what happened at Pondicherry and also recorded other historical events that had repercussions in the French Indian capital.

**Anagapala :** A king belonging to the Tomara dynasty, flourished in the middle of the eleventh century of the Christian era, built the Red Fort in Delhi where the Qutb Mosque now stands and thus gave permanence to the city of Delhi.

**Anantavarman Choda Ganga :** The most notable king belonging to the Eastern Ganga dynasty, ruled over Kalinga for seventy-one years (A.D. 1076-1147). He built the temple of Jagannath at Puri as well as the great temple of Sun God at Konark in Puri in Orissa.

**Anarkali :** A lady with whom Prince Salim, later Emperor Jahangir (1605-27), was in secret love. The emperor built a beautiful marble tomb on her grave at Lahore in 1615 and inscribed on it a couplet expressing his passionate love for her.

**Angad :** The second Guru of the Sikhs, was nominated by Guru Nanak himself who held him in high esteem. He was the leader and preceptor of the Sikhs for 14 years (1438-52).

**Ansari, Dr. (1880-1936) :** A prominent Muhammadan nationalist leader. Born in Bihar, he graduated in Medicine from Edinburgh and settled as a physician in Delhi. In 1912-13 he organised in India a medical mission which he sent to Turkey to help her in her wars. He presided over the 1920 session of the Muslim League and the Madras Session of the Indian National Congress in 1927.

**Anwar-uddin (1743-49) :** Began his career in the service of Asaf Jah, Nizam-ul-Mulk, and was appointed by the Nizam as the Nawab of Carnatic in 1743.

**Aparajita Pallava :** He was the last of the Pallava kings of Kanchi. He ruled in the second half of the ninth century. In A.D. 862-63, he defeated the Pandya King Varaguna Varman. He himself was defeated and killed by the Chola King

Aditya I (A.D. 880-907).

**Appa Sahib :** He was a son of Vya younger brother of Raghuji II, the Bhonsla (1788-1816) of Nagpur. On the death of Raghuji in 1816, Appa Sahib first became the Regent but was defeated by the English in November 1817.

**Aram Shah :** Sultan of Delhi (1206-11) successor of Qutb-ud-din, the first Sultan of Delhi. He was deposed soon in favour of Qutb-ud-din's son-in-law, Iltutmish.

**Arjun Dev :** The fifth Guru (1581-1606) of the Sikhs, was son and successor of Ram Das, the fourth Guru. He compiled the *Adi Granth* collecting several verses from the works of the four preceding Gurus as well as of many Hindu and Muhammadan saints. Jahangir had him executed on a charge of treason.

**Asad Khan :** He was the minister of Ibrahim Adil Shah I, Sultan of Bijapur (1535-57). His greatest achievement was a diplomatic victory won in 1543 over the neighbouring states.

**Asad Khan :** He was the Prime Minister for many years of Emperor Aurangzeb (1659-1707). His son Zulfikar Khan was one of the best generals of Aurangzeb.

**Asaf Jah (Chin Qilich Khan) :** He was a prominent member of the Turani party of Mughal nobles who had their original homes in some parts of Central Asia and who occupied important positions in the court of the later Mughal emperors. Aurangzeb's son and successor Emperor Bahadur Shah (1707-12) made him the governor of Bengal. Later on in 1713 he was appointed the governor of the Deccan with the title of Nizam-ul-Mulk. He died in 1719. Emperor Farrukhsiyar (1713-19). He died in 1719.

**Asaf Khan :** Mughal general, was governor of Kara at the beginning of the reign of Emperor Akbar (1556-1605). In 1564 he conquered the kingdom of Gondwana after defeating the Regent, Durgavati.

**Asaf Khan :** He was the son of Mirza Gulistan Beg, a Persian immigrant who came to India during the reign of Akbar, and brother of Mihr-un-Nisa, better known as Nur Jahan, the queen of Emperor Jahangir (1605-27). Asaf Khan's daughter Mumtaz

**Mahal** was married to Shah Jahan. Shah Jahan made him **Wazir** of the Empire.

**Asaf-ud-daulah (1775-97)** : The son and successor of Nawab Suj-ud-daulah of Oudh, was an inefficient administrator who made with the East India Company the treaty of Faizabad. After mal-administering Oudh for sixteen years Asaf-ud-daula died in 1797.

**Asanga** : A renowned Buddhist scholar, saint and author, flourished in the Gupta period (4th century A.D.) He was the brother of Vasubandhu, teacher and minister of the second Gupta Emperor Samudragupta (C. A.D. 330-60) and was the author of *Yogacharya Bhumi Shastra*.

**Askari** : The fourth and youngest son of the first Mughal Emperor Babur (1526-30), was given by his eldest brother Humayun (1530-55) the fief of Sambhal.

**Ashoka** : The third Emperor (C. 273 B.C. - 232 B.C.) of the Maurya dynasty of Magadha founded by his grandfather Chandragupta Maurya (C. 322 B.C. - 298 B.C.). His full name was Ashokavardhan. His personal religion, after the conquest of Kalinga, was Buddhism. Ashoka's dominions extended from the Hindu-Kush in the north-west to Bengal in the east and from the foot of the Himalayas in the north to the river Pennar in the south. He left his inscriptions scattered all over his vast empire.

**Asvaghosha** : A Buddhist saint and scholar who flourished in the second century of the Christian era, was born in Magadha but later on moved to the court of Kanishka, and lived at Peshawar. He was a poet, musician, scholar, philosopher, dramatist, zealous Buddhist monk, orthodox in creed and strict in the observance of discipline.

**Asvalayana** : An ancient author whose *Grihya-Sutra* is a storehouse of information about religious rituals and social customs of the early Brahmanical Hindus. The earliest reference to Mahabharata is found in his *Grihya-Sutra*.

**Atisha** : A renowned Buddhist monk and preacher, was born in about A.D. 931 in a well-to-do family of landlords in Eastern India in Sa-hor or Za-hor. His teachings removed many of the

abuses that had crept into Buddhism in Tibet and created amongst the Tibetans many Buddhist monks who upheld the religion in Tibet for many years afterwards. He died in A.D. 1054.

**Aurangzeb** : The sixth Mughal emperor (1659-1707) of India, was the third son of Shah Jahan (1627-59). His chief wife was Dilras Banu Begum. He was a zealous Sunni Muslim and tried to live and rule strictly in the spirit of the Quranic law.

**Avantivarman** : A king of Kanauj of the Mankhari dynasty, was a contemporary of King Prabhakavardhana of Pushyabhuti family of Thaneswar.

**Avantivarman of Kashmir** : Founded in A.D. 855 in Kashmir the Utpala dynasty after overthrowing the Karkata dynasty. He is famous for the irrigation works that were executed by his orders in Kashmir.

**Azam, Prince** : The third son of the sixth Mughal Emperor Aurangzeb, was defeated and killed by his brother Prince Muazzam in the battle of Jajau near Agra on June 10, 1707.

**Azim-ud-daulah** : He was made in 1551 the titular Nawab of the Carnatic by Lord Wellesley, Governor-General (1793-1805) and was granted a pension.

**Azim-ullah Khan** : A retainer of Nana Sahib, the son of Peshwa Bajirao II (1793-1818) played a mysterious part in bringing about the Sepoy Mutiny in 1857.

**Azim-us-Shah, Prince** : The second son of the seventh Mughal Emperor Bahadur Shah I (1707-12), was killed in the course of the war of succession that followed his father's death in 1712. A year later his son Farrukhsiyar (1713-19) became the emperor.

**Aziz-ud-din** : The original name of the sixteenth Mughal Emperor Akbar II (1554-59).

**Badal** : A Rajput hero of Mewar, along with Gora, at the head of a small band of Rajputs resisted the much larger forces of Sultan Alauddin Khilji when he invaded Chittor. Badal was ultimately overwhelmed and killed in battle and Chittor was stormed by the Sultan.



**Badan Singh** : Son of Bahu Singh established by his military skill, cunning and marriage policy, a Jat state comprising the districts of Agra and Mathura. He died in 1756.

**Badarayana** : An ancient Brahmanical author of uncertain date. His work *Brahma Sutra* was one of the fundamental books on which Sankaracharya based his Vedantic philosophy of Advaitavada.

**Badaoni** : Was a reputed contemporary historian of Akbar's court. He was an orthodox Sunni. His work the *Muntakhabu-t-Tawarikh* contains an account of Akbar's reign from the point of view of an orthodox Sunni Muhammadan who could not appreciate the liberalism of Akbar.

**Baden-Powell, Lord** : Founded the world-wide organisation known as the Boy Scouts Movement. Indians were at first refused admission into this organisation. The colour bar was removed by the efforts of Lord Baden-Powell after he had paid a visit to India.

**Badr-i-Chach** : Was a contemporary historian of the time of Muhammad Tughluq (1325-51).

**Bahadur Shah I** : The seventh Mughal emperor (1707-12) of Delhi was the second son of Emperor Aurangzeb whom he succeeded on his death in 1707 after a war of succession. As a prince his name was Muazzam and he was also known as Shah Alam. After his accession he assumed the title of Bahadur Shah and he was also often called by his older title of Shah Alam or Alam Shah. He conciliated the Rajputs by wise concessions. He neutralised the Maratha hostility by releasing Shambhuji's son, Shahu, whom Aurangzeb had kept a captive in his court since 1689. Bahadur Shah I died in 1712.

**Bahadur Shah** : The Sultan of Gujarat (1526-37), defeated the Sultan of Malwa and annexed his territories in 1531. He also overran Mewar and stormed Chittor in 1534. But next year he was utterly defeated by the Mughal Emperor Humayun. Bahadur Shah was persuaded by the Portuguese to visit the Portuguese Governor Nuno da Cunha to board his ship in February, 1537, but he was treacherously drowned by the Portuguese who also murdered all his companions.

**Bahadur Shah** : The ruler of Khandosh towards the close of the 16th century, held the fort of Asirgarh when Emperor Akbar besieged it in 1600. The fort was eventually captured by Akbar.

**Bahar Khan Lohani** : The independent Afghan ruler of Bihar in the first quarter of 16th century, appointed Farid Khan, later on famous as Sher Shah, in his service in 1522. Bahar Khan also appointed Sher Khan as his Deputy and also as a tutor of his minor son Jalan Khan.

**Baha-ud-din Gurshasp** : He was the son of a sister of Sultan Ghiyasuddin Tughluq (1320-25). He rose in revolt against Sultan Muhammad Tughluq in 1326-27.

**Bahlol Lodi** : The Sultan of Delhi from 1451-89. He belonged to the Lodi tribe of the Afghans. He was the governor of Lahore and Sirhind in 1451 when Sultan Alam Shah of the Sayyid dynasty abdicated the throne. He was the first Afghan Sultan of Delhi and the founder of the Lodi dynasty.

**Bahram Khan** : A foster brother of Sultan Muhammad Tughluq, was appointed by the Sultan as a co-governor with Ghiyasuddin Bahadur Shah in East Bengal.

**Bairam Khan** : A companion of Emperor Humayun, was appointed by him as the guardian of his minor son Akbar. On the death of Humayun in 1556 Bairam Khan took the initiative and took necessary measures for proclaiming Akbar as the successor of Humayun on the throne of Delhi. He was murdered by a private enemy in Gujarat in 1561 on his way to Mecca.

**Baiza Bai, Maharani** : She was the consort of Daulat Rao Sindhia. On the death of Daulat Rao in 1827 she became the Regent of his minor successor, Jankoji Rao. She was expelled from the State in 1833.

**Baji Rao I** : The Second Peshwa (1720-40) was appointed to the office in succession to his father Balaji Viswanath by Raja Shahu. Baji Rao I thought of establishing a Hindu empire (*Hindu-pad-Padshahi*) in place of the Muslim Mughal empire. He therefore decided to carry the victorious armies of the Marathas into northern India.

**Baji Rao II :** He was the eighth and last Peshwa (1796-1818). Son of Raghoba who had tried to secure the Peshwaship with the assistance of the English. He signed the treaty of Bassein (December 31, 1802) by which he entered into a subsidiary alliance with the East India Company. Peshwaship was abolished by the English in 1818, and Baji Rao II was sent as a pensioner to live at Bithur near Cawnpore

**Bajpal, Sri Ram :** He was a member of the Servants of India Society founded by G.K. Gokhale in 1905. Sri Ram founded in 1914 the Seva Samiti Boy Scouts Association.

**Bakht Khan :** A leader of the mutinous sepoy at Delhi in 1857, played a prominent part in Delhi during the Mutiny.

**Bakhtiyar Khilji :** He was the father of Ikhtiyar-ud-din Muhammad who drove away Lakshman Sen from Nadia and thus laid the foundation of Muslim rule in Bengal.

**Baladitya II :** It was the surname of the Gupta king Bahanu Gupta.

**Balaji Baji Rao :** The third Peshwa (1749-61), succeeded his father Baji Rao I to the Peshwaship in 1740. The third battle of Panipat (on January 14, 1761) between the Marathas and Ahmad Shah Abdali was a disaster for the Maratha nation and Balaji Baji Rao died of a broken heart on June 23, 1761

**Balaji Viswanath :** The first Peshwa (1713-20) of Raja Shahu, the Maratha king. By dint of his abilities the Peshwa became the real head of the Maratha administration. He also greatly increased the strength and prestige of the Maratha state.

**Balaputradeva :** A king of the Sailendra dynasty of Suvarnavdipa, built a monastery at Nalanda and sent an embassy to King Devapala (C.A.D. 839-78) of Magadha and Bengal asking for the grant of five villages for the maintenance of his monastery at Nalanda

**Balaram Seth :** He was the Minister of Jaswant Rao Holkar (1799-1811). On the death of Jaswant Rao, Balaram Seth supported the Holkar's favourite mistress, Tulsi Bai and kept her in power

until the outbreak of the third Anglo-Maratha War (1817-18).

**Balasri, Queen :** She was the mother of the Salavahan King Gautamiputra (C. A.D. 103). Queen Balasri executed an inscription at Nasik which records the conquests of her son Gautamiputra

**Balavarma :** He was the King of a State of Aryavarta who was violently exterminated by Samudragupta (C. A.D. 330-80)

**Balban, Sultan Ghiyasuddin :** He was the ninth Sultan (1266-87) of the Slave dynasty. Balban was originally a Turki Slave of Sultan Iltutmish. By dint of merit and ability Balban gradually rose to higher rank and positions

**Ballal Sen :** He was a prominent king (C. A.D. 1158-79) of the Sen dynasty of Bengal. He conquered north Bengal and probably made a campaign against the Pala rule in Bengal. Two of his works, *Danasegara* and *Adbhutasegar* have come down to modern times

**Ban Pal, Rana :** Of the small state of Saurashtra gave shelter to Qutlagh Khan of Bayana who had risen in revolt against Sultan Nasiruddin (1245-66) but was defeated and put to flight by the Sultan's Deputy, Balban

**Bana :** He was the court-poet of King Harshavardhana (A.D. 606-47) of the Pushyabhuti dynasty of Thaneshwar and Kanauj. His work *Harsha-charita*, written about A.D. 620, is a contemporary account of the deeds of Harsha. His other work *Kadambari* is a famous classic of Sanskrit literature

**Banda :** He became the leader of the Sikhs after the assassination in 1708 of the tenth guru Govind Singh (1664-1708). Banda was a pious leader of Sikhs from 1708 to his cruel execution in 1715

**Bandhupallita :** He was a son of Kuntala and a grandson of Ashoka Maurya

**Bandhuvarman :** He was the Viceroy or feudatory of the Gupta emperor, Kumara Gupta I (A.D. 415-55), at Dasapura in western Malwa. He is mentioned in the Mandasari inscription of A.D. 437-38

**Banerjee, Hemchandra** : A Bengali poet (1838-1903), introduced in his poetical works like *Vritrasamhār* (1875-77) a nationalist spirit. His famous poem *Bharata-Sangeeta* (1870) called upon the people to strive for realising the independence of India.

**Banerjee, Rangalal** : A Bengali poet (1827-87). He tried to spread the spirit of nationalism and the desire of freedom amongst his countrymen through his writings. As early as 1859 he published a poetical work named *Padmini*.

**Banerjee, Krishnamohan** : One of the early students of Derozio (1809-31), was a prominent example of the *Young Bengal* produced by the Hindu College. He was the first secretary of the Indian Association and was also one of the earliest Fellows of the Senate of Calcutta University.

**Banerjee, Sir Gurudas (1844-1918)** : A Puishe Judge of the Calcutta High Court, retired in 1904. He was also Vice-Chancellor of Calcutta University for two terms. Chief amongst his works were *Jnana O Karma* (Knowledge and Rituals) in Bengali and *Few Thoughts on Education*.

**Banerjee, Sir Surendranath** : Born in 1848 of a Brahman family of Calcutta, graduated from Calcutta University, passed the ICS Examination in 1869, joined the Indian Civil Service in 1871, but was soon dismissed from the service. He played a prominent part in founding the Indian Association in 1876 and in holding the first All-India National Conference in Calcutta in 1883. He presided over the eleventh session of the Indian National Congress held at Poona in 1895, and also over the eighteenth session held at Ahmedabad in 1902.

**Banerjee, W.C. (1844-1906)** : The first president of the Indian National Congress held at Bombay in 1885. Anglicised his family name Banerjee into Bonnerjee. He was made Congress president a second time at its Allahabad session in 1892.

**Bhandi** : A prominent statesman at the court of Thaneshwar at the accession in A.D. 606 of Harshavardan, which he supported.

**Bapa** : He was the founder of the Guhilot

Rajput dynasty of Chittor from whom descended the famous Ranas of Mewar including Rana Sangram Singh and Rana Pratap Singh.

**Barani, Ziauddin** : A Muslim historian who lived in the reign of Sultan Firoz Shah (1351-88). His *Tarikh-i-Firoz Shahi* is an authentic contemporary account of the reign of Firoz Tughluq.

**Barbak Shah** : Originally an Abyssinian slave in the service of King Jalauddin Fakhruddin (1481-86) of Bengal. In 1486 he defeated and killed his master and himself ascended the throne of Bengal with the title of Barbak Shah and Sultan Shahzada.

**Barbak Shah** : The elder son of Bahlol Lodi, was appointed as his Vice-Roy in Jaunpur in 1486.

**Barbak Shah of Bengal** : He was the son of Nasir-uddin Mahmud, the independent Sultan of Bengal (1442-60). He ruled over Bengal for 27 years from 1460-74.

**Barid, Amir** : The son and successor of Kasim Barid, the founder of the Barid Shahi dynasty of Bidar, assumed royal title in 1526.

**Basava** : He was the Brahman minister of Bijjala Kalachurya, King of Kalyani, who abdicated his throne in A.D. 1167. Basava was the founder of the Lingayat or Vira Saiva Sect.

**Bayazid** : The son of Sulaiman Khan, King of Bengal (1569-72), succeeded his father but soon lost Bengal to the Mughal Emperor Akbar.

**Baz Bahadur** : The ruler of Malwa, was defeated by Akbar's generals, Adham Khan and Pir Muhammad in A.D. 1561-62. In February 1562 he surrendered to Emperor Akbar. His last name Rupamali has passed into legend. He later entered into the service of Akbar and won a reputation as a musician.

**Bebadal Khan** : A famous and experienced jeweller of Agra, supervised the making of the Peacock Throne by the order of Emperor Jahangir.

**Begums of Oudh** : They were the wives and grandmother of Nawab Asaf-ud-daula of Oudh who ascended the throne of Oudh in 1722.

In December 1782 they were obliged by Governor-General Warren Hastings to surrender the treasure in the possession of which they had been formally guaranteed by the Council in Calcutta in 1775.

**Besant, Mrs. Annie (1847-1933)** : English theosophist, born in London in October 1847. She founded the Central Hindu College at Benares, and was elected president of the Theosophical Society in 1907. In 1916 she founded the Indian Home Rule League and became its first president and in 1917 she was the president of the Indian National Congress at its Calcutta session. She published an *Autobiography* in 1893 and the *Religious Problem in India* in 1902. In her *How India Wrought for Freedom* she called India her "motherland".

**Bethune, John Elliot Drinkwater (1806-62)** : He was Law Member of the Supreme Council of India. He took a keen interest in the promotion of education amongst the Indians, particularly amongst Indian women. He founded the Bethune School in Calcutta for promoting western education amongst the Indian girls of higher classes.

**Bhadrabahu** : Last of the Jain saints known as the *Shrutakevalins*, was a contemporary of the Maurya King Chandragupta Maurya (C. 322-298 B.C.). He had effected the introduction of Jainism to southern India.

**Bhadra** : He was the fifth king of the Sunga dynasty. He has been identified with King Udaka or Odraka of the Pabhosa inscription.

**Bhadrasala** : The general of the last Nanda King, was defeated with great slaughter by Chandragupta Maurya on the eve of his accession to the throne of Pataliputra.

**Bhadrayasa** : An Indian leader, played an important part in destroying the Bactrian Greek Kingdom of the eastern Punjab.

**Bhagawan Das** : Raja of Amber or Jaipur, was the son of Raja Behan Mall who voluntarily submitted to the Mughal Emperor Akbar and entered into a marriage alliance.

**Bagabhadra, Kashiputra** : A king of Vidisa, received in the 14th year of his reign Heliodoros

as an ambassador to his court from Antioch as the Greek king of Tarsus.

**Bhagavata** : He was a king of Vidisa in the 12th year of whose reign a Garuda Pillar was raised at Vidisa or Besnagar. He is to be distinguished from King Bhagabhadra of Besnagar referred to by Heliodoros in the Garuda Pillar that he raised at Besnagar.

**Bhandi** : The chief statesman in Kanauj at the time of the death of Rajyavardhan and played a prominent part in placing Harsha on the throne.

**Bhanudeva** : A king of Ganga dynasty, ruled over Onssa on the eve of Alauddin's invasion of the Deccan. He was swept away by the onrush of the Muslim conquest in about A.D. 1294.

**Bhanugupta** : One of the latest of the early Imperial Guptas, has been assigned to about A.D. 510 and has been identified with the Gupta Emperor Baladitya who defeated the Hunas under Mihirkula.

**Bhartridaman** : The great satrap of Ujjain from about A.D. 269-95, was the son of the Great Satrap Rudrasen (died 274) and succeeded his elder brother Viswasimha (died 288). His son Visvasura was only a Satrap and the Great Satrapship appears to have been temporarily suspended after the death of Bhartridaman.

**Bhartihari** : A famous Sanskrit poet, flourished in the seventh century of the Christian era. His most famous book *Bhartrihariyam* shows that Bhartrihari was a poet, grammarian and philosopher.

**Bhas** : An early Sanskrit dramatist anterior to Kautilya, the author of *Arthashastra*, is believed to have composed 13 dramas. He, Chandana, Pradipa and Swapna Vagadatta.

**Bhaskaracharya** : The most celebrated Indian astronomer and mathematician, was born in A.D. 1114 at Brampur at the foot of the Sahyadri range in the Deccan. He wrote *Siddhanta Shiromani*.

**Bhaskar Pandit** : A general of the Maratha chief Raghuji Bhonsla, raided Bengal in 1743-45 during the reign of Alivardi Khan (1743-50). The Nawab inveigled Bhaskar Pandit to a

conference at Mankarah near Cossimbazar and assassinated him.

**Bhaskarvarman** : The most famous of the early Kings of Kamarupa (Assam), ruled from about A.D. 600 to A.D. 650 and was the last but the greatest monarch of the dynasty established by Pushyavarmān in the 4th century A.D. After Harsha's death (A.D. 648) he became the supreme master of eastern India.

**Bhavabhūti** : Sanskrit poet and dramatist and author of *Uttararāṇa* and *Malatīmādhava*, was the court poet of King Yasovarmān of Kanauj who ruled early in the 18th century.

**Bhava Naga** : A sovereign of the Bharasivas, has been mentioned in several inscriptions of the Vakatakas. He flourished before the rise of the Gupta empire.

**Bhima I** : He was the Chalukya or Solanki King of Gujarat. During his rule Sultan Mahmud of Ghazni made a raid on the Siva temple of Somnath. King Bhima I failed to prevent the raid and the temple was destroyed by Sultan Mahmud in A.D. 1025.

**Bhima** : Belonged to the caste of the Kaiyartas and was the nephew and successor of Divvoka, or Divya. He led a revolt against the Pala King, Mahipala II of Bengal and established an independent kingdom in north Bengal.

**Bhima** : The fourth King of the Hindu Shahiya dynasty of Udbhandapura. His daughter's daughter was the celebrated queen Didda of Kashmir.

**Bhīma-deva II** : A later king of the Solanki or Chaukya dynasty of Gujarat, had a great distinction of repulsing in A.D. 1178 a raid by Shihabuddin Muhammad Ghori with heavy losses.

**Bhīm Sen** : A Hindu historian, flourished in the reign of Aurangzeb (1656-1707) and wrote in Persian a historical work named *Nushka-in-Dilkusha*.

**Bhoja I** : A Gurjara - Pratihara king of Kanauj, ruled for 50 years (C. 840-900). His original name was Mihira. His dominions extended from the foot of the Himalayas in the north to the Narmada in the South and from Bengal in the

East to the Sutlej in the west.

**Bhoja of Malwa** : A king of the Pratihara Pawar dynasty of Malwa, ruled from C. A.D. 60. His capital was at Dhāra. His assume was Navashahasanka, i.e. New Vikramāditya.

**Bhumaka** : He was the founder of Kshaharata or Great Satrap family of Mahār with his capital at Nasik.

**Bihari Lal** : Next to Tulasi Das, the eminent Hindi poet of the Seventeenth century completed his *Satsai* in 1662.

**Bihari Mall** : Raja of Amber, was a in politics. He submitted to Babur and, on his to his son Humayun. In 1555 he was present Akbar and was well received. He cemented friendship with Akbar by giving a daughter to him.

**Bijjala Kalachurya** : A rebel against Chalukya king of Kalyani. He founded Kalachurya dynasty and was a patron of Jainism. His Brahman minister, Vasava, founded Lingayat or Vira Saiva Sect.

**Bilgrami, Syed Hussein** : He was the Director of Public Instruction in the Nizam's Dominions. He was one of the only two Indian members (the other being Sir Gurudas Banerjee) of the Education Commission appointed by Lord Curzon in 1902. He was also one of the first two Indians (the other being Sri K.G. Gupta) to be appointed as Member of the Indian Council by the Secretary of State, Lord Morley.

**Bilhana** : He was born in Kashmir. He came the court poet of the Chalukya Vikramaditya VI (1076-1127) of Kalyani. He wrote *Vikramanka-charita*.

**Bimbisara** : He was the king of Magadha and was the founder of the greatness of Magadha. He is said to have been anointed king sixty years before the death of Gautam Buddha which is believed to have taken place in 486 B.C.

**Bindusara** : The second Maurya emperor (C. 300 B.C. : 273 B.C.), was the son and successor of Chandragupta Maurya, the founder of the Maurya dynasty.

**Bir Narayan** : He was the king of Gondwana. After her mother Rani Durgawati

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continued the war against the Mughal invaders.

**Bir Singh Bundela :** The chief of the Bundelas, murdered at the instigation of Prince Salim in 1602 by Akbar's trusted and councillor Abul Fazl.

**Birbal, Raja :** A Rajput chief, voluntarily entered into the service of Emperor Akbar (1556-1605), rose in high favour and was given the title of Raja. He was defeated and killed in 1586 when leading a Mughal army against the Yusufzi tribe on the north-western frontier.

**Bishan Das :** A Hindu painter of repute, enjoyed the patronage of Emperor Jahangir (1603-27).

**Biswa Singh :** He was the founder of the Koch Kingdom with modern Cooch Behar as his capital in about 1515. The line of kings founded by him in Cooch Behar lasted till modern times.

**Bithal Das :** Son of the famous Vaishnava saint, Vallabhacharya (born 1479) was not only his father's successor to the headship of the sect founded by him, but was also a reputed Hindi author who wrote the *Chaurasi Vaishnava Ki Varta*.

**Bopadeva :** A famous Sanskrit grammarian, flourished under the later Yadavas of Devagiri. His work known as *Mughdhabodha* is considered to be a standard work on Sanskrit grammar.

**Bose, Anand Mohan (1847-1906) :** He was a prominent Indian public man in his times. He was the first Indian to be a Wrangler of Cambridge University in 1873. He was the first founder-secretary of the Indian Association which was established in Calcutta in 1876. He presided over the 14th session of the Indian National Congress held in Madras in 1898. He was also the first president of the Sadharan Brahma Samaj.

**Bose, Sir Jagadish Chandra (1858-1937) :** He was a renowned Indian scientist, plant physiologist and physicist, was born in the district of Dacca in Bengal. He founded in 1917 the Bose Research Institute in Calcutta. He made great contributions to physical science by his work on electrical radiation and still more important contributions in the field of animal and plant physiology.

**Bose, Subhas Chandra :** Popularly known as Netaji, was born on January 23, 1897, Cuttack in Orissa, of respectable middle-class Bengali parents. He passed the Indian Civil Service Examination in 1920. He joined the Indian National Congress in 1921. In 1938 he was the President of the INC at its Haripura session and in 1939 he was elected president of its Tripuri session. In 1943, he took charge of the Indian National Army in Singapore. He died in a plane crash on August 18, 1945.



**Brahmapala :** The founder of the Pal dynasty of Kings of Kamarupa, flourished about A.D. 1000. His dynasty came to an end in the first half of the twelfth century A.D.

**Brahmajit Gaur :** He was a Hindu general in the service of Sher Shah (1530-45).

**Brahmanaspati :** A Rig Vedic deity who was the Lord of Prayer.

**Brihadratha :** He was the founder of the earliest dynasty of Magadha kings. He was the father of Jarasandha and his dynasty ruled Magadha till the sixth century B.C.

**Brihaspati :** An ancient lawgiver of India. His work, the *Brihaspati-Smriti*, is assigned to the Gupta Age.

**Babuji Khanam :** The name assumed by the Maratha wife of Sultan Yusuf Adil Shah (1490-1510) of Bijapur. She was the sister of a Maratha chieftain named Mukund Rao.

**Buddha, Gautam :** The founder of Buddhism, was born in a princely Kshatriya family at Kapilavastu in the Nepalese Tarai to the north of the Basti district in U.P. He delivered his first sermon at the Deer Park at Sarnath near Benares. He died at Kusinagar, situated in the Gorakhpur district.

**Buddha Gupta :** The last emperor (C. A.D. 476-95) of the main line of the Guptas, maintaining some semblance of the unity of the Gupta empire.





Karkota dynasty which was established in Kashmir in the seventh century A.D.

**Chandra Sena Jadav :** Son of Dhanaji Jadav, was the Commander-in-Chief of the Maratha King Sahu.

**Charak :** A celebrated physician who wrote a very authoritative book named after his own name on pathology and medicine. He was a contemporary of the Kushana King Kanishka.

**Charvaka :** He was the exponent of the materialist school (*lokayata*) of Indian philosophy. He discarded the authority of the Vedas, denied the existence of an imperishable soul outside the body, and expounded a philosophy which asked men to eat, drink and be merry in this life. According to his theory, sense perceptions were the only realities.

**Charumati :** She was a daughter of the Maurya Emperor Asoka (C. 272 B.C. - 232 B.C.). She accompanied her royal father on his visit to Nepal in 250 or 249 B.C. She founded a town in Nepal called Devapatana after her deceased husband (Devapala Kshatriya).

**Chastana :** He was the founder of the line of the Great Satraps of Malwa who had their capital at Ujjain in the later part of the first century of the Christian era.

**Chatter Singh :** A leading Sikh Sardar on the eve of the outbreak of the Second Sikh War in 1848.

**Chhatrasat :** He was the son and successor of the Bundela chief Champat Rai. He championed the cause of the discontented Hindus of Bundelkhand and Malwa. He carved out an independent kingdom for himself in eastern Malwa by 1671. He established his capital at Patna and ruled till his death in 1731.

**Churaman Jat :** Organised the Jats of the Maratha district into a strong military power and offered armed resistance against the Mughals after the death of Emperor Aurangzeb. In 1721 his stronghold of Thum was captured by Sawai Jai Singh.

**Dadabhai Naoroji (1825-1917) :** A prominent businessman of Bombay with trading

connections with England. He was elected president of the Indian National Congress at its second session held in Calcutta in 1886. He was the first Indian to be elected a member of the House of Commons in England on a ticket of Liberal Party. Twice again, in 1893 and in 1906, he was elected president of the INC. He died in 1917.

**Dadaji Khonddev or Konadeo :** A Maratha Brahmin, was the instructor and guardian of the great Maratha leader Shivaji (A.D. 1627-80) in boyhood. He laid the basis of the future revenue system of Shivaji.

**Dadu :** Founded the sect known as Dadupanthis. He was a contemporary of the Mughal Emperor Shah Jahan (1627-58) and composed many poems aimed at reconciling Hinduism and Islam. His followers wear no sectarian emblems and worship no images.

**Dalip Singh (or Dulip Singh) :** He was the youngest son of Ranjit Singh of the Punjab. He succeeded to his father's throne as a minor in 1843, with his mother Rani Jindan as the Regent. After two Anglo-Sikh wars (1845-46 and 1848-49) the English deposed Dalip Singh and annexed Punjab.

**Damaji Gaekwad :** Son of Pilaji Gaekwad, was at first an adherent of the Senapati Trimbak Rao Dhabade of the Maratha kingdom. Peshwa Bajirao I established him as his agent in Gujarat. He established the Maratha feudatory house of the Gaekwads with his headquarters at Baroda.

**Damodara Gupta :** He was the reputed Sanskrit scholar who enjoyed the patronage of King Jayapida of Kashmir who ruled in the ninth century A.D.

**Dandin :** Flourished in the sixth century A.D. He was at once a poet, literary critic and prose writer of romances - all in Sanskrit. His *Kavyadarsha* is a poetical work on Sanskrit poetics and his *Dasakumaracharita* is one of the earliest and best known romances in Sanskrit literature.

**Danishmand Khan :** A courtier in the court of Delhi during the closing years of Aurangzeb. He was the patron of Bernier.

## IMPORTANT INDIAN PERSONALITIES

**Daniyal, Prince :** He was the third and youngest son of the Mughal Emperor Akbar. He was born in 1572 and died in 1604.

**Dandidurga :** He was the founder of the Rashtrakuta dynasty of kings in about the middle of the eighth century A.D. He defeated and overthrew Kirtivarman II, the last Chalukya king of Vatapi, and established the new line of kings who ruled in the Deccan from A.D. 733-972.

**Danujamardana Deva :** He was a king of Bengal whose coins bearing Sanskrit legends in Bengali, characters with Saka dates, 1339 and 1340, have been found in many places in Bengal.

**Dara Shukoh, Prince :** He was the eldest son of Emperor Shah Jahan born of his queen Mumtaz. He was the governor of the Punjab. He was inclined to Sufism and belonged to the Hanafi school of Islam. Aurangzeb had him beheaded on 30th August 1659.

**Darsaka (C. 467 B.C. - 443 B.C.) :** He was the son and successor of Ajatasatru, King of Magadha (C. 494 B.C. - 467 B.C.).

**Das, Chittaranjan (1870-1925) :** An eminent lawyer practising in the High Court of Calcutta. He became the elected Mayor of Calcutta with Subhas Chandra Bose as the Chief Executive Officer of the Calcutta Corporation. He became the president of the Indian National Congress in 1922. He died on June 16, 1925.

**Das, Saratchandra (1849-1917) :** He visited Tibet, in 1879 and again in 1881, Sikkim in 1884 and Peking in 1885. His work *Indian Pandits in the Land of Snow* first informed the English-speaking world of the services, evangelical and cultural, that had been rendered to Tibet by Indian Buddhist monks who visited Tibet.

**Dasaratha :** The legendary king of Ayodhya or Oudh, was the father of Ramachandra, the hero of *Ramayana* by Valmiki.

**Dattaji Sindhia :** A Maratha general, was placed in charge of the Punjab by the Peshwa Balaji Rao in 1759. He was killed by Ahmad Shah Abdali at the battle of Bararighat, about ten miles north of Delhi.

**Daud Khan :** He was the son and successor

of King Sulaiman Kararani of Bengal who died in 1572. Daud claimed to be the independent ruler of Bengal. After the death of Daud in July 1576, Bengal became an integral part of the empire of Akbar.

**Doulat Khan :** He was the Mughal governor of Qandahar when that fort was attacked by Shah Abbas, King of Persia, in December 1648.

**Daulat Khan Lodi :** He was a premier Afghan nobleman in Delhi at the beginning of the fifteenth century. After the death of Sultan Mahmud Tughluq in 1413, Daulat Khan was placed on the throne of Delhi by the nobles of Delhi.

**Daulat Khan Lodi :** He was the semi-independent governor of the Punjab early in the sixteenth century. During the 1525 invasion of Babur, Daulat Khan was compelled to submit to Babur.

**Daulat Rao Sindhia :** A grandson of Tukoji, brother of Mahadaji. Sindhia succeeded to the headship of the house of Sindhia on the death of his uncle Mahadaji in 1794. Daulat Rao's main ambition was to establish his authority over the Peshwa in Poona. He died in 1817.

**Dawar Baksh :** He was a son of Prince Khusrav and Khusru, the eldest son of Emperor Jahangir (1605-27), who had died in 1627. On the death of Jahangir in October 1627 Prince Dawar Baksh was installed on the Delhi throne by Asaf Khan as a stop-gap emperor.

**Dayanand Saraswati, Swami (1824-83) :** He was the founder of the Arya Samaj (1875). He wanted to rebuild Hindu religion and society in India. 'Go back to the Vedas', was his motto. He started the Shuddhi movement, that is to say, the movement for re-converting non-Hindus to Hinduism. He was a great force in the promotion of Indian nationalism in the nineteenth century.

**Deedo Meer :** A Muslim leader, had many followers in the district of Faridpur, now in East Pakistan. They created a sort of popular rising in 1847 and had to be suppressed by force.

**Devabhuti (or Devabhumi) :** The last of the Sunga dynasty (C. 185 B.C. - 73 B.C.) of Magadha, was a person of licentious habits. His death was brought about in C. 73 B.C.

who established the Kanva dynasty.

**Devadatta** : A cousin of Gautama Buddha, he broke away from Buddhism and founded a rival sect which existed even in the time of the Guptas in the fourth century of the Christian era.

**Devanampiya Tissa** : He was the king of Ceylon and a contemporary of Asoka. He converted to Buddhism.

**Devapala (C. A.D. 810-50)** : Son of Dharmapala, was the third king of the Pala dynasty, which ruled over Bengal and Bihar. Under him the Pala dynasty reached the zenith of its power. He was a great patron of Buddhism.

**Devapala** : The Pratihara King of Kanauj, ruled from C. A.D. 940-55. He was defeated by the Chandela king Yasovarman and obliged to surrender a much-prized image of Vishnu which Yasovarman enshrined in one of the finest temples at Khajuraho.

**Deva Raya I (C. A.D. 1406-22)** : He was the third king of the first dynasty of the kings of Vijayanagar. The Bahmani Sultan, Firoze attacked Vijayanagar and occupied the capital for some time.

**Deva Raya II (A.D. 1425-46)** : The sixth king of the first dynasty in Vijayanagar, re-extended the northern boundary of his kingdom up to the Krishna and established his supremacy over Kerala.

**Dhana Nanda** : The last of the Nanda kings who ruled in Magadha when Alexander the Great invaded India. He is the Agrames or Xandrames of classical writers. He was defeated and killed by Chandragupta Maurya who established the Maurya dynasty on the throne of Magadha (C. 322 B.C.).

**Dhanga (C. A.D. 950-99)** : He was the most powerful king of the Chandella dynasty. He built some of the grander temples at Khajuraho. In A.D. 989 or 990 he joined the confederacy of Indian princes to resist Sabuktigin.

**Dhanaji Jadav** : He was a Maratha leader. He kept up Maratha resistance against the Mughals and continued the struggle for Maratha independence. On Shahu's release in 1707

Dhanaji was appointed as his commander-in-chief.

**Dharmapala** : The second king of the Pala dynasty of Bengal and Bihar, had a long reign (C. A.D. 752-94) and was the real founder of the greatness of the Pala dynasty.

**Dharmaratna** : An Indian monk residing in Central Asia, went along with Kasyapa Matanga to China in A.D. 65, and established the White House monastery at Lo-Yang and thus started Buddhism on a proselytising enterprise in China.

**Dhiman** : A celebrated artist and sculptor, flourished in the ninth century in Bengal when the Palas were reigning.

**Dhoyi** : He was a court poet of king Lakshmana Sena (A.D. 1179-1205) of Bengal. His work *Pavanadutam*, composed on the model of the *Meghadutam* of Kalidas, describes an adventure of Lakshmana Sena, as prince.

**Dhruva** : The fourth king (C. A.D. 780-93) of the Rashtrakuta dynasty of Manyakheta, he was a stout warrior who defeated Vatsaraja, the Gurjara King of Bhinmal. Dhruva also inflicted a defeat on the Pallavas in about A.D. 775.

**Dhruvabhatta** : The king of Vallabhi, married the daughter of Harshavardhan of Kanauj (A.D. 606-47) and on the latter's death his son, Dharasen IV assumed imperial titles.

**Dhruva Devi** : The queen of Chandragupta II, Vikramaditya (A.D. 380-415), was the mother of the next Gupta sovereign, Kumaragupta (A.D. 415-55).

**Didda** : She was the queen of Khama Gupta, king of Kashmir who administered the kingdom towards the close of the tenth century. In A.D. 1003 she passed on the crown to her nephew, Sangramaraja, who founded the Lohara dynasty of the kings of Kashmir.

**Digraga** : He was an Acharya or great teacher. He was a celebrated Buddhist sage who flourished in the fourth century A.D., probably during the reign of Chandragupta II Vikramaditya (A.D. 380-415).

**Dilawar Khan Ghuri** : He claimed descent from Shihab-ud-din Muhammad Ghuri. He was appointed governor of Malwa in 1392. In 1401 he

himself up practically as an independent ruler Ialwa.

**Dilawar Khan Lodi** : Son of Daulat Khan I, semi-independent governor of Lahore, under Sultan Ibrahim Lodi (1517-26), the last of the Ii Sultans.

**Dilir Khan** : He was a Mughal noble who sent by Emperor Aurangzeb as one of the commanders - the other being Raja Jay Singh mber - against the Maratha leader, Shivaji.

**Dilras Bano Begum** : A daughter of Shah az Khan, a Persian nobleman employed as a hal officer, was married to Prince Aurangzeb 337.

**Dinkar Rao, Sir** : He was the Diwan of the araja Sindhia who reigned in the middle of nineteenth century. He kept Sindhia and his y steadily loyal to the British Indian govern- it during the period of the Sepoy Mutiny and thus of great help to the British.

**Divakara** : A poet, who flourished during reign of Harshavardhana (A.D. 606-47) and yed his patronage.

**Diovodasa** : He was a famous king men- ed in the Rig Veda who fought against ibara, the non-Aryan king of the Dasas.

**Divoka or Divya** : A Kavarta leader, set up a time an independent state in North Bengal ng the reign of Mahipala II (C. A.D. 1070-75) m he defeated and killed.

**Dost Ali** : He was the Nawab of the Carnatic province he held under the suzerainty of the rm of Hyderabad. In 1743 the Carnatic was ded by the Marathas who defeated and killed t Ali and carried away as captive his son-in- Chanda Saheb.

**Durgadas** : He was a famous leader of the rors of Marwar. He waged a prolonged war the Mughals who were ultimately forced to gnise Ajit Singh, Raja Jaswant Singh's post- ous son, as the Rana of Marwar in 1709.

**Durgavati Rani** : She was one of the most trious female rulers in the history of India. She a daughter of Kirat Rai, the Chandella king of oba and Kalanjar who was killed when Sher

Shah besieged the fort of Kalanjar in 1545. She was killed in 1564 when Akbar's Mughal army invaded her kingdom.

**Durlabha Rai** : He was a treacherous gen- eral of Nawab Siraj-ud-daula of Bengal who, along with Mir Jafar, joined in a conspiracy with the En- glish by a treaty on June 10, 1757, against his own master, the Nawab.

**Durlabhavardhana** : Founded the Karkota dynasty of kings in Kashmir in the seventh cen- tury A.D. His dynasty ruled over Kashmir till A.D. 855 when it was supplanted by the Utpala dy- nasty.

**Dutt Ramesh Chandra** : Born in 1848. He played a very important role in the Indianisation of the Civil Service and in promoting the causes of social reforms and nationalism in India. He joined the Indian Civil Service in 1871. Later on he served as the Diwan in the Gaekwad's state of Baroda. He presided over the session of the Indian Na- tional Congress held at Lucknow in 1899.

**Eknath** : A Maratha religious reformer and saint, flounshed in the later part of the sixteenth century. He was born at Paithan. He preached the doctnne of devotion to God, condemned the caste system and went to the extent of dining with a low caste Mahar. He died in 1608.

**Faizi** : Son of Shaikh Mubarak and elder brother of Abul Fazl, was a poet and litterateur who first met Akbar in 1567. It was Faizi who composed the *Khutba* which Emperor Akbar re- cited when he ascended the pulpit for the first time on June 27, 1579. Faizi was sent by Akbar as his envoy to Khandesh and Ahmadnagar in 1591.

**Faizulla Khan** : He was the son of Ali Muhammad Ruhela was one of the founders of the Rohikhand State.

**Fakhir-ud-din** : He was the *Kotwal* of Delhi during the reign of Sultan Balban. He played an important part, first, in the installation of Kaiqubad on the throne of Delhi after the death of Sultana Balban in A.D. 1287, and later on, in 1290, in the deposition of Sultan Kaiqubad in favour of al-ud-din Khalji.

**Fath Khan** : He was a son of Malik Ambar, the Chief Minister for years of the Nizam Shahi Kings of Ahmadnagar. He was the Chief Minister of Murtaza Nizam Shah II, the penultimate king of Ahmadnagar whom he killed in 1630, and proclaimed his younger son, Husain, the king of Ahmadnagar.

**Fathullah** : A Hindu convert to Islam, was the governor of Berar during the reign of the fourteenth Bahmani Sultan Mahmud (A.D. 1482-1518). He set himself up as an independent ruler in Berar in A.U. 1484 and assumed the title of Imad-ul-Mulk. His dynasty ruled in Berar till 1574.

**Firishtha, Muhammad Kasim (C. 1570-1612)** : He was a famous historian who wrote in Persian. Born at Astrabad (Persia) he came to India. He died in 1589 when he moved on to Bijapur. He wrote *Tarikh-i-Firishtha* in 1609. He is known to be one of the most trustworthy of oriental historians.

**Firuz Khan** : He was the only son of Islam (or Salim) Shah, the only son and successor of Sher Shah (1540-45).

**Firuz Shah** : He was a relation of the Mughal Emperor Bahadur Shah II (1837-58). He played a prominent part in fomenting anti-British feelings in pre-Mutiny days.

**Firuz Shah Bahmani (1397-1422)** : He was the eighth Sultan of the Bahmani dynasty in whose reign the dynasty attained the greatest splendour. In 1406, Firuz entered the city of Vijayanagar and obliged Deva Raya I, the king of Vijayanagar (1406-12) to make peace by giving his daughter in marriage to the Muslim invader.

**Firuz Shah Tughluq** : The first cousin and successor of Muhammad Tughluq, the second Sultan of the Tughluq dynasty, ruled from March 1351 till his death in September 1388. He was an orthodox Muslim. His administration was mild, prices were very low and people generally lived in peace. He was the patron of two Muhammad historians : Ziauddin Barani and Sam-i-Siraj Afif.

**Gadadhar Singh** : He was the twenty-ninth Ahom King who ruled over Assam for fifteen years (1681-96). He recovered Gauhati from Mughal

occupation in 1682. He built the temple of Umananda on an island in the Brahmaputra just opposite the Kutcheri ghat at Gauhati.

**Gadai, Shaikh** : He was a Shiah who Bairam Khan, the guardian of Emperor Akbar appointed as the *Sadr-us-Sudur* or the chief officer and ecclesiastic in the state.

**Gajapati Prataparudra** : The king of Orissa was defeated by the Vijayanagar king, Krishnadeva Raya (1510-30) to whom he lost the fortress Udayagiri.

**Ganda** : The son and successor (A.D. 1025) of the Chandella King, Dhanga, joined confederacy of Hindu princes in 1008-9 against Mahmud of Ghazni.

**Gandhi, Mohandas Karamchand** : Known as Mahatma Gandhi, was born on October 2, 1869 at Porbandar in Gujarat. Became a barrister-at-law (1891) in England. Went to South Africa in 1893. Stayed there till 1914 for the cause of the emancipation of the Indians from the insulting life to which



they had been so long been condemned in South Africa. He launched : Non-cooperation (1919), Civil Disobedience (1930) and Quit India Movement (1942) was the father of the Indian nation as at the dawn of an age of independence shot dead by Nathuram Godse on J 1948.

**Ganesh, Raja** : He was original baron of Dinajpur in North Bengal. Death of Sultan Ghiyas-ud-din Azar (1410) of Bengal, he assumed the crown in 1414. He also assumed the title *mardana-Deva*, and ruled till 1418.

**Gangadhar Shastri** : The Chief of the Gaekwad of Baroda, was friendly to the English and thereby incurred the

eshwa Baji Rao II (1796-1818). In 1814 angadhar was murdered at the instigation of the eshwa's favourite, Trimbakji at Nasik.

**Ganga Singh, Sir, Maharaja :** Ruled over Kaner in Rajputana from 1887 to 1934. He was progressive Indian prince. He was the first Chancellor of the Chamber of Princes (1921-25) and General Secretary of the Princes' Conference held Delhi, 1916-20. He was appointed to the staff Sir John French, the British Commander-in-Chief France during the First World War.

**Gautami Balasri :** A dowager-queen of the Satavahana dynasty, she was an ideal *jarshibadhu* (a royal sage's wife) and was the other of the famous Satavahana king, autamiputra Satakarni.

**Gautamiputra Satakarni :** A famous king of the Satavahana dynasty, ruled in the first quarter of the second century A.D. He extirpated the shaharata dynasty which had been established at Bhumaka.

**Ghasiti Begum :** She was the eldest daughter of Alivardi Khan, Nawab of Bengal (1740-56). She was married to Nawazis Muhammad, a son of the elder brother of Nawab Alivardi Khan. Ghasiti did not support Siraj-ud-daula's succession of Bengal. She professed the claims of Shaukat Jang, the son of her second sister and governor of Arna.

**Ghazi-ud-din Imad-ul-Mul :** Son of Ghazi-Idin Khan, the eldest son of the first Nizam of Hyderabad. After becoming Paymaster-General at Delhi, he invited Marathas with whose help he posed the reigning Emperor Ahmad Shah (1748-54). He murdered Emperor Alamgir II in 1759 and set up a grandson of Kam Baksh, the youngest son of Emperor Aurangzeb, as Emperor Shah Jahan III. Ghazi-ud-din died in 1800.

**Ghiyas-ud-din Khilji :** The second sultan of the Khilji dynasty of Malwa, ruled from 1469 to 1491.

**Ghiyas-ud-din Mahmud Shah :** He was the last king of the Husain Shahi dynasty which ruled in Bengal from 1493 to 1538. He came to the throne of Bengal in 1533 but was expelled

from Bengal after a short reign of five years by Sher Khan Sur.

**Ghiyas-ud-din Tugluq :** He was a Sultan of Delhi (1320-25) and the founder of the Tugluq dynasty. His earlier name was Ghazi Malik. He was appointed to the post of the Warden of the Marchus by Ala-ud-din Khilji. Ghiyas-ud-din's rule was cut short by an accident, which was premeditated by his son and successor, Jauna Khan.

**Ghosh, Aravind (1872-1950) :** An ardent nationalist who later became a saint, was educated in England. His views were readily accepted by Lala Lajpat Rai of Punjab and Bal Gangadhar Tilak of Maharashtra and led to the formation with the Congress of an extremist school. He propagated his ideas through journals like the *Bandemataram* and *Karmayogin*. He passed away in 1950.

**Ghose, Lalmohan (1849-1909) :** He was a barrister-at-law, practising in the Calcutta High Court. He led a deputation to the House of Commons in 1887-80 against the reduction of maximum limit of age for the ICS from 21 to 19. He was the greatest Indian orator of his time and his adherence to it added much strength to the Indian National Congress.

**Ghose, Rashbehari :** He was a leading *Vakil* of the Calcutta High Court. He was elected president of the Sural session of the Indian National Congress in 1907 in which the Moderates and Extremists came to a serious clash. Next year he presided over the Madras session of the INC.

**Ghosha :** She was one of the few eminent Indian ladies of the Vedic age. Some of the hymns of the Vedas are attributed to her.

**Ghulam Husain Khan Tabataba, Syed :** A famous historian, was a Muhammadan nobleman related to Nawab Alivardi Khan of Bengal. His *Siyer-at-Mutakhirin* is a very authoritative and reliable account of the decay of Mughal Empire and of Muhammadan dominions in India during reigns of the last seven Mughal emperors of India.

**Ghulam Qadir :** A grandson of the Rohilla chief Najib-ud-daulah, practised in Delhi from 1761 to 1770 as the deputy of...

## GENERAL KNOWLEDGE

as well as of the Mughal Emperor Shah Alam II (1759-1806). Ghulam Qadir was defeated and executed by Mahadaji Sindhia who then became the practical protector of the Mughal Emperor.

**Gokhale, General :** He was in the service of Peshwa Baji Rao II (1796-1818). He led the Peshwa's army in the Third Maratha War and was defeated and killed in the battle of Ashti in 1818.

**Gokhale, Gopal Krishna (1886-1915) :** He was a prominent Indian nationalist. He presided over the 1905 session of the Indian National Congress. He became a member of the Bombay Legislative Council in 1902. In 1905 he founded at Poona, the Servants of India Society. In the enlarged Viceregal legislature set up in 1910 Gokhale was the commanding figure. His last public duty was to serve as a Member of the Indian Public Services Commission (1912-15). He died in 1915.

**Gokla :** A leader of the Jats inhabiting the Mathura district of U.P. In 1669 Gokla took the lead in attacking the oppressive Mughal *faujdar* of Mathura who was killed.

**Golab Singh, Maharaja of Kashmir :** Began his career as a horseman in a cavalry troop of Maharaja Ranjit Singh of Punjab who rewarded him with the principality of Jammu. After the treaty of Lahore (1846), the British handed Kashmir to Golab Singh for ₹ 1,000,000. The dynasty founded by him ruled in Kashmir till its integration with India in 1948.

**Gopala I :** He was the founder of the Pala dynasty which ruled over Bengal and Bihar for about four centuries. He ruled probably from A.D. 750 to A.D. 770.

**Gora :** A Rajput hero of Mewar, along with his comrade-in-arms, Badal, resisted the army of Ala-ud-din Khilji at the outer gate of Chittor when that fort was attacked by the Sultan's army.

**Gosala :** A monk, was a contemporary of Buddha and of Mahavira. Gosala founded the Ajivika sect.

**Govinda Singh, Guru :** The tenth Guru of the Sikhs, succeeded his father, the ninth Guru, Tegh Bahadur, in 1675 and occupied the position till his murder at Nander in the Deccan by an

Afghan in 1708. He was the last Guru but was the real founder of the Sikh military power. He instituted the ceremony of *pahul* or baptism. The brotherhood he constituted was called the *Khalsa* or Pure.

**Govinda I :** The founder of the Bhoi dynasty which ruled in Orissa from A.D. 1542-59. He belonged to the Bhoi or writer caste and was formerly a minister of King Prataparudra (1497-1540) of Orissa.

**Govinda I :** He was an ancestor of Dantidurga, the founder of the Rashtrakuta dynasty, which ruled in the Deccan from A.D. 753 to A.D. 973.

**Govinda II :** An early king of the Rashtrakuta dynasty. He was the son and successor of king Krishna I and ruled from 775 to 779.

**Govinda III :** The son and successor of King Dhruva, was the most remarkable prince of the Rashtrakuta dynasty. He ruled from 793 to 815. He extended his power on the north beyond the Vindhya mountain into Malwa and on the south to Kanchi or Canjeeveram.

**Govindachandra :** A king of the Gahadvala dynasty of Kanauj, was a grandson of the founder-king Chandradeva and ruled from 1114 to 1154. One of his grants refers to a special levy called *Turushkadana* which was collected from meeting the cost of resisting the Muhammadan raiders.

**Grahavarman Maukhari :** He was the son of Avantivarman, the Maukhari king of Kanauj. He became king towards the close of the sixth century and married Rajyasri, daughter of Prabhakaravardhan, king of Thaneswar.

**Gulbadan Begum :** A daughter of the first Mughal Emperor, Babur (1525-30). She wrote the *Humayun-namah*.

**Gunavarman :** A prince born in the royal family of Kashmir, became a Buddhist monk and dedicated his life to the propagation of the Buddhist religion in the Far East. He died in Nanking in China in A.D. 431.

**Gupta :** A perfumer by profession he was the father of Upagupta who converted Asoka to Buddhism and accompanied the Emperor on his

our to Rummindei, the birth-place of Gautama Buddha.

**Gupta** : A local chief in Magadha, was the grandfather of Chandragupta I, the founder of the Gupta dynasty.

**Hafiz Rahamat Khan** : The leader of a loose confederacy of Rohilla chiefs who ruled over Rohilkhand in the early seventies of the eighteenth century. In 1774 the forces of Oudh backed by an Indo-British army inflicted a decisive defeat on the Rohillas in the battle of Miranpur-Katra in the course of which Hafiz Rahamat was killed.

**Haider Ali Khan** : He became a ruler of Mysore in about 1761. Extended his dominions by conquering Bednori, Canara and the petty poligars of South India. He was confronted with the hostilities of the Nizam of Hyderabad, the Marathas and the English simultaneously. He died in the midst of a war with the English on December 7, 1782, leaving to his only son and successor, Tipu Sultan, the task of bringing to victorious close his second war with the British in India.

**Haji Ibrahim Sarhindi** : An eminent scholar who under the patronage of Emperor Akbar translated into Persian the *Atharva-Veda*.

**Haji Ilyas** : The King of Bengal (C. 1345-7). He assumed the title of Shamsuddin Ilyas Shah. He annexed Eastern Bengal to his dominions and exacted tribute from Orissa and Tihut.

**Hakim, Prince Muhammad** : The second son of Emperor Humayun (1530-56) and the brother of Emperor Akbar. He was appointed by Akbar as governor of the province of Afghanistan.

**Hakim Dawai** : A Persian scholar who acted as the teacher of Prince Khurram, later on Emperor Shah Jahan, in his boyhood and taught him Persian.

**Hamida Banu Begum** : The consort of Emperor Humayun and mother of Akbar. She exercised a great deal of influence on the administration during the early years of Akbar's reign.

**Hamir** : A Rajput hero of Mewar. In about 16, he recovered Chittor from the Delhi Sultan. He died in 1364.

**Hamir Deva** : The Chauhan king of

Ranthambhor from 1282 until his death in 1301. Ala-ud-din - Khalji besieged and stormed Ranthambhor in 1301.

**Har Dayal** : An educated Indian revolutionary. Studied at Oxford. In 1908 he left India, and settled in the USA, where he organised the Ghadr party. Expelled from the USA, he went to Europe and set up his headquarters in Berlin. He died in Central America. He advocated organised rebellion against the British rule in India.

**Har Govinda** : The sixth Guru (1606-45) of the Sikhs. He gave a military bent to his followers.

**Har Kishan** : The eighth Guru (1661-64) of the Sikhs. He continued to encourage the military spirit introduced amongst the Sikhs by his grandfather Guru Har Govind.

**Har Rai** : The seventh Guru (1645-61) of the Sikhs. He continued the fiscal policy introduced by his grandfather, Guru Har Govind.

**Hari Pant Phadke** : A Maratha general who led, under Nana Fadnavis' orders, a Maratha army against Tipu Sultan of Mysore in December 1785 and obliged Tipu Sultan to open peace negotiations.

**Hari Singh Naola (Nalwa)** : The Sikh general of Maharaja Ranjit Singh of Punjab, who in May 1834 captured the citadel of Peshawar which then passed under the control of Maharaja Ranjit Singh.

**Harihar I** : Son of Sangama. With the collaboration of his four brothers he founded the Hindu Kingdom of Vijaynagar in A.D. 1336, on the southern banks of Tungabhadra.

**Mahavira** : Or Vardhamana Mahavira, to give his full name, was the founder of Jainism. He was born of a noble Kshatriya family related to the ruling families of Vaishali and Magadha and was named Vardhamana. He attained the highest spiritual knowledge called *Kevalajnana*. Henceforth he became known as *Kevalin* (Omniscient), *Nirgrantha* (Free from fetters), *Pina* (Conqueror) and *Mahavira* (The Great Hero). He died at the age of seventy two at Pava in Patna. He lived in Bihar some time during the reign of King Ashoka.

**Mahendra, Prince** : He was the



a brother of Ashoka. He along with his sister Sanghamitra went in C.251 B.C. to Ceylon where they propagated Buddhism. Converting King Tissa and the members of the royal family as well as many of the common people.

**Mahendrapala :** He was the son and successor of the Gurjara-Pratihara king, Mihira Bhoja. He not only maintained intact his father's vast empire extending from Saurashtra to Oudh, but also drove the Pala Kings from Magadha and advanced into Western Bengal where he left an inscription. The celebrated poet Rajasekhara, the author of the drama *Karpura-manjuri*, was his teacher as well as an honoured member of his court.

**Mahendraravman I :** He was the son and successor of the Pallava King, Simhavishnu of Kanchi. His reign was famous for the numerous public works like rock cut temples and caves, the establishment of the new town of Mahendravadi between Arcot and Arconam and the construction near the new city of a great reservoir.

**Mahendraravman II :** A great son of the Pallava King, Mahendraravman I and son and successor of Narsimharavman I, ascended the throne in C. A.D. 668 and ruled only for six years.

**Mahipala I :** ( C. A.D. 978-1039) was the ninth king of the Pala dynasty of Bengal. During his rule the disintegration of the Pala kingdom began. He was the greatest Pala king after his father and his name is associated with many public works in Benares, Nalanda and in North and West Bengal.

**Mahipala II :** He was the great grandson of the Pala king, Mahipala I. His rule was short (C. 1070-75 A.D.), his administration was weak and he was defeated and killed in a battle with the rebel, Divya, one of his high officials who was a Kaivarta by caste.

**Mahmud :** He was a Sultan of Bidar, who invaded Vijaynagar immediately and was beaten back and wounded by the Vijayanagar king.

**Mahmud, King of Jaunpur :** The third king of the Sharqi dynasty ruled from 1436 to 1458. He was a successful ruler who built some beautiful mosques at Jaunpur.

**Mahmud, Sultan of Ghazni :** He was the son of Amir Sabuktigin whom he succeeded on the throne of Ghazni in A.D. 986-87. He assumed the title of Sultan to signify his independence and ruled till his death in A.D. 1030. During this period he made frequent raids ( seventeen in number) into India. He annexed to his dominions the Punjab and left the rest of India bleeding and demoralised.

**Mahmud Begara :** He was the sixth Sultan of Gujarat. Ascending the throne at the age of thirteen he ruled prosperously for fifty two years (A.D. 1459-1511). He conquered Champaner, Baroda, Junagarh and Oudh and defeated the Sultan of Ahmadnagar. He also fought against the Portuguese in the Indian waters and defeated a Portuguese fleet at the battle of Chaul in 1505.

**Mahmud Gawan, Khwaja :** He was a Persian who entered into the service of the eleventh Bahmani Sultan, Humayun (1457-61) and (1461-63). Mahmud Gawan rose further and was one of the two chief advisers of the queen-mother and was the Regent. After Nizam's sudden death in 1413 the throne passed to his brother Muhammad who ruled from 1436 to 1482. During his reign Mahmud Gawan was the chief minister.

**Mahmud Ghuri :** The third and last king of the Ghuri dynasty of Malwa, was a worthless ruler too much addicted to drinking and was poisoned to death by his minister in 1436.

**Mahmud Khilji :** The minister of Mahmud Ghuri, King of Malwa (1432-36), poisoned his master to death and usurped his throne in 1436. He ruled from 1436 till his death in 1469 and established the Khilji dynasty of Malwa.

**Mahmud II :** He was the last king of the Khilji dynasty of Malwa. He was defeated by Humayun Bahadur Shah of Gujarat (1526-37) who annexed his kingdom.

**Mahmud of Bahmani :** He was the penultimate Bahmani Sultan and successor of the penultimate Bahmani Sultan Muhammad III. Only Bidar acknowledged his nominal sway at the time of his death in 1518.

**Mahmud Tugluq :** He was the last Sultan of the Tughluq dynasty of Delhi. Jaunpur, Gujarat, Malwa and Khandesh all became independent

Muslim states while a Hindu principality was established in Gwalior and the Hindus of the Doab were constantly in revolt. In the midst of such circumstances Timur invaded India in 1398. With his death in 1413 the Tughluq dynasty came to an end.

**Malcolm, Sir John** : He was an eminent officer in the company's service, which he joined in 1782, came to India in 1783 and served in India till his retirement in 1830. He was present at the siege of Seringapatam in 1792 as well as its capture in 1799.

**Malhar Rao Holkar** : The founder of the Holkar family of Indore, rose into prominence by rendering efficient and loyal service to Peshwa Baji Rao I (1720-40).

**Malik Ahmad** : The founder of the Nizam Shahi dynasty of Ahmadnagar, had been the governor of Junnar near Poona under the Bahmani sultan, Mahmud for some years before he revolted and set himself up as an independent sovereign in 1490. He assumed the title of Ahmad Nizam Shah and established his capital at Ahmadnagar. He died in 1508 and his dynasty known as the Nizam Shahi ruled at Ahmadnagar till 1637 when the Kingdom was finally annexed to the Mughal Empire.

**Malik Amber** : He was an Abyssinian slave who rose to be the chief minister of Ahmadnagar and was in charge of its administration for many years. He was distinguished alike as a general and as a statesman and it was his endeavour that foiled all the efforts of Emperor Jahangir to conquer Ahmadnagar.

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and works of public utility like canals of which one is known as the old Jumna canal.

**Malik Hasan** : He was originally a Brahman who became a convert to Islam and was given the name of Malik Hasan. He was the governor of Telengana during the rule of the Bahmani Sultan, Muhammad III (1453-82).

**Malik Maqbul** : He was the governor of Warangal during the Sultanate of Muhammad Tughluq (1325-51). Malik Maqbul was driven out of Warangal by the brothers Haripara and Burka in about 1340; and the latter then established the Kingdom of Vijaynagar.

**Malik Muhammad** : A contemporary of Emperor Humayun (1530-55), was one of those rare Muhammadan men of letters who wrote his books in Hindi.

**Malik Shahu Lodi** : An Afghan chief of Multan, revolted towards the later part of the reign of Sultan Muhammad Tughluq (1325-31) but was defeated and forced to escape to Afghanistan.

**Mallikarjun** : The son and successor of King Devaraya II of Vijaynagar, ruled from A.D. 1447 to 1465.

**Mallu** : The third Sultan of Bijapur, ruled only for six months in 1534 and was blinded and deposed for his viciousness.

**Malviya, Madan Mohan, Pandit** : He was a leading nationalist leader, prominent educationist and social reformer. Born in Alwarabad, he began his career in 1885 as a school teacher and in 1893 enrolled himself as a Vakil in the Alwarabad High Court. He also tried his hand at journalism and between 1885 and 1907 he edited three journals named *Hindustan*, *Indian Union* and *Abhyudaya*. He joined the second session of the Indian National Congress held in 1886 and twice became its president in 1909 and 1916. He was also elected a member of the Legislative Council of the U.P. in 1902 and later on of the Legislative Assembly. His greatest achievement was the foundation of the Hindu University in 1915 in Benaras by raising the necessary funds from the princes and people of India.

**Mamulanar** : An ancient Tamil Brahman

a brother of Ashoka. He along with his sister Sanghamitra went in C.251 B.C. to Ceylon where they propagated Buddhism. Converting King Tissa and the members of the royal family as well as many of the common people.

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**Mamulanar** : An ancient

## GENERAL KNOWLEDGE

poet, flourished four centuries after the Mauryas. He made in his works frequent references to the power of the Mauryas in the Deccan.

**Man Singh :** He was the most famous king of the Tonwar dynasty of the Rajputs of Gwalior. He ruled from 1486 to 1517. He was great as a soldier as well as a builder. He and his beloved consort, Mrignayana, developed at Gwalior a great centre of fine arts like music attracting the best musical talent from all over India. Man Singh also built at Gwalior the magnificent palace with its great gate on the eastern face of the rock, whose strength and grace best illustrated the personality of their builder.

**Man Singh, Kunwar and Raja :** He was the grandson by adoption of Raja Bihari Mall of Amber. He entered into the service of Emperor Akbar in 1562 when Raja Bihari Mall made his submission to the Emperor and gave him a daughter in marriage. Man Singh served the Mughal Empire until his death in the Deccan in 1614. He was one of the main Hindu supporters of Mughal imperialism.

**Mansur Ali Khan :** He was the last Nawab Nizam of Bengal. The honours and emoluments previously attached to the Nawab of Murshidabad like the salute of 19 guns and exemption from attendance in civil courts were taken away from him and his pension was also reduced. He resigned his position and titles in 1880.

**Mansur Khwaja Shah :** He was the first finance minister of Emperor Akbar and was much trusted by him. But Mansur intrigued against Akbar with his brother, Prince Hakim and was hanged by Akbar's order in 1581.

**Manu :** He was a famous sage and law-giver of the Hindus. His book the *Manu-Samhita* (or the laws of Manu) deals with all aspects of the domestic life of an orthodox Hindu.

**Mayurasarman :** The founder of the Kadamba dynasty which ruled in Mysore, was a Brahman by caste but a warrior by profession who, probably in the fourth century A.D., revolted against the Pallavas of Kanchi and established the Kadamba dynasty.

**Medini Rao :** He was a loyal vassal of Sangrama Singh of Mewar. He was killed at the fort of Chanderi when it was invaded by the Mughals in 1528. Medini Rao was killed and the fort was stormed by Mughals.

**Mihiragula (also spelt Mihiragula) :** He was the son and successor of the ruler of Toramana who ruled over an extensive empire comprising a large part of the western half of the Gupta Empire and central Malabar. He succeeded to the throne in about A.D. 500. He was a tyrannical and a cruel persecutor of the Buddhists. His capital was Sakala or Sialkot in Punjab.

**Minhaj-i-Siraj :** (full name Mirhaj-i-Siraj) was a famous historian. He held high office under Sultan Nasir-ud-din (1246-66) and named his work *Tabaqat-i-Nasiri* after his royal patron.

**Mir Jafar :** He was the Nawab of Bengal from 1757 to 1760 and again from 1763 to 1793. He was a brother-in-law of Nawab Miran Jafar of Bengal and was the most powerful person in the court of Murshidabad. Alivardi's son, Mir Jafar, succeeded Nawab Siraj-ud-daulah after the latter's death. Mir Jafar's loyalty and dismissed him from the post of Nawab. He was the most outstanding Indian Muhammadans who were responsible for the downfall of Muhammadan rule in India.

**Mir Jumla Mir Muhammad :** He was a Persian merchant-adventurer who began his career in Golconda as a very successful merchant, entered into the service of Abdullah Qulib Shah of Golconda and became its chief minister. Mir Jumla entered the service of Shah Jahan in the Deccan. Afterwards he was appointed the chief minister of Shah Jahan. He was appointed by Shah Jahan in 1660 as the Governor of Bengal.

**Mir Jumla, Shariyat-ullah Khan :** He was a Turani nobleman who was a judge in Agra and Patna in the early part of the reign of Farrukhsiyar (1713-19). He was appointed to set Farrukhsiyar against the Sultans of Delhi but later went over to the side of the Sultans and helped them in their struggle.

**Kasim (also spelt Mir Qasim) :** He led by the English as the Nawab of Ben-  
O in place of his father-in-law, Mir Jafar,  
deposed. Mir Kasim purchased the of-  
ding to the company the three districts  
an, Midnapur and Chittagong, by paying  
of rupees in cash to the Calcutta Council  
freeing to clear the outstanding debts of

**an :** He was the son and prospective  
awab Mir Jafar (1757-60). He captured  
raj-ud-daulah who had fled after his de-  
battle of Plassey, and brought him back  
dabad where he killed him in 1757.

**an Bahadur Shah :** The ruler of  
in the valley of the Tapti, submitted to  
Akbar in 1590, but he soon repented of  
ission and rose in revolt. But in 1599  
adur Shah was subdued. Khandesh was  
to the Mughal Empire.

**za Abu Talib Khan :** He was one of the  
r Muhammadans to go across the seas  
d where he arrived in 1785.

**za Ghulam Ahmad (1839-1908) :** He  
founder of the Ahmadiya sect of Islam  
adquarters at Qadian in the Punjab.

**za Ghulam Hossain :** He was one of  
Muhammadan historians of India. His  
Siyar-ul-Mutaqherin, is a contemporary  
if the closing years of the Mughal Em-  
of the early years of the rise of the British  
India.

**za Haidar :** He was the king of Kashmir  
to 1551. He was a Mughal and a rela-  
nperor Humayun on whose behalf he  
govern the country. He was overthrown  
ishmiri nobles in 1551.

**za Najaf Khan :** He was a Persian ad-  
who came to Delhi, entered into the  
ervice and rose to be the chief minister  
or Shah Alam II (1759-1806). He was  
chief minister on Shah Alam's return to  
772 and held the office till his own death

**Mirza (or Mir) Shah :** He was the first Mu-  
hammadan Sultan of Kashmir, came from Surat  
and rose by his ability to be the minister of the  
Hindu king of Kashmir. In 1346 he seized the  
throne, assumed the name of Sams-ud-din and  
founded a dynasty which ruled over Kashmir till  
1541.

**Morari Rao :** A Maratha chief of Gooty in  
the Deccan, helped the English and Clive in the  
Carnatic war against Chanda Sahib. He also  
helped Clive in relieving Trichinopoly in 1752 and  
in defeating Chanda Sahib the same year.

**Mubarak Shah Sharqi :** The first indepen-  
dent King of Jaunpur ruled for only three years  
(1399-1402)

**Mubarak-ud-daulah :** He was a minor  
Nawab of Bengal. Warren Hastings was accused  
in 1775 by Nanda Kumar of having accepted large  
bribes from Munni Begum in return for her ap-  
pointment as guardian of the minor Nawab.

**Muhammad Adil Shah (1626-56) :** The  
seventh Adil Shahi Sultan of Bijapur, saw during  
his long reign the beginning of the Marathas ag-  
gression in addition to more persistent Mughal  
invasion. He had at last to secure peace with Em-  
peror Shah Jahan

**Muhammad Adil Shah (or Adal) Sur :** The  
nephew of Sher Shah and the third king of the  
Sur dynasty of Delhi ruled only for two years (1554-  
56) and was killed at Monghyr in 1556. He was  
the patron of Hemu in whose hands he left the  
administration

**Muhammad Ali :** An educated Indian Mu-  
hammadan, who along with his brother Shaikat  
Ali, led the Khilafat movement in 1920. He joined  
with Mahatma Gandhi and the Indian National Con-  
gress in the non-co-operation movement. He pre-  
sided over the Gaya session of the Indian Na-  
tional Congress.

**Muhammad Ali :** He was the natural son of  
Nawab Anwaruddin Nawab of the Carnatic.  
Muhammad Ali became the *de facto* Nawab of  
the Carnatic in 1752.

**Muhammad bin-Kasim :** He was a young  
Arab general who was sent by Al-Hajaj, the Arab

governor of Iraq, who was his uncle and father-in-law, to chastise Dahir, the King of Sind. Muhammad stormed Debal, captured Nerun, crossed the Indus and defeated and killed King Dahir at the battle of Raor in A.D. 712.

**Muhammad bin-Tughluq :** He was the Sultan of Delhi from 1325 to 1351. He was the son and successor of Ghiyas-ud-din Tughluq, the founder of the Tughluq dynasty, whose accidental death was, according to some, contrived by Muhammad Tughluq himself. In 1327 the Sultan ordered the transfer of the capital from Delhi to the more centrally situated Devagiri, which he re-named Daulatabad. In 1330 the Sultan decided to issue a token currency, and issued copper tokens in lieu of gold coins. Sultan Muhammad Tughluq died of fever when engaged in suppressing the rebellion in Sind in 1351.

**Muhammad Ghuri (also called Shihab-ud-din and Muiz-ud-din) :** He was the founder of the Muslim rule in India and of the Delhi Sultanate. Muhammad Ghuri was a great general and conqueror.

**Muhammad Sultan, Prince :** The eldest son of Emperor Aurangzeb, was appointed to various important posts by his imperial father and was rather popular with the Rajputs. He died in 1676, long before Aurangzeb's death.

**Muhammad Quli :** The fifth Qutb Shahi Sultan of Golconda, had a long reign from 1580 to 1612. He spent his energies in fighting for the occupation of the Carnatic, Orissa and Bastar.

**Muhammad Qutb :** The nephew and son-in-law of Muhammad Quli, fifth Sultan of Golconda whom he succeeded in 1612, ruled till his death in 1626.

**Muhammad Reza Khan :** He was appointed at the instance of the Calcutta Council of the East India Company to be the Deputy Nawab of Bengal on the death of Nawab Mir Jafar in 1765.

**Muhammad Shah :** The fourteenth Mughal Emperor of Delhi, ruled from 1719 to 1748. Installed on the throne of Delhi by the Sayyid brothers. His first achievement was to get rid of them by murder and execution.

**Muhammad Shah I :** The second Bahmani Sultan, reigned from A.D. 1358 to 1573. His rule was chiefly occupied by wars against the Hindu kingdoms of Vijaynagar on the south and Warangal on the North.

**Muhammad Shah II :** The fifth Bahmani Sultan ruled from 1378 to 1397, was a lover of peace, was devoted to learning and fought no foreign wars.

**Muhammad Shah III :** The thirteenth Sultan (1463-82) of the Bahmani Kingdom, was only nine years of age at his accession and the administration was carried on very efficiently by the minister, Muhammad Gawan who subdued the Hindu Rajas of Konkan as well as Goa. His reign was thus one of military triumphs, but it had a tragic ending.

**Muiz-ud-din Chisti :** He was a Muslim saint whose tomb at Ajmer frequently visited by Akbar and his son Jahangir.

**Mujahid :** The third Bahmani Sultan (1373-78), was murdered by his cousin, Daud, who succeeded him only to be murdered within a year of his own coronation by a slave.

**Mukherjee, Asutosh :** He was an eminent lawyer and educationist. Born of a middle class Bengali Brahman family in Calcutta, he had a distinguished academic record and began his career in 1888 as a Vakil practising in the Calcutta High Court. He was raised to the Bench in 1904, officiated as the Chief Justice of the Calcutta High Court in 1920. He was certainly a maker of modern Bengal, if not of India, by virtue of his eminent services to the cause of education. At the early age of 25 he became a member of the Senate of the Calcutta University of which he became the Vice-Chancellor for four terms.

**Mukherjee, Dhan Gopal :** A Bengali litterateur who settled in the U.S.A. He wrote several books in English of which the *Portrait of My Brother* delineates the life and character of his elder brother, Jadu Gopal, a renowned terrorist leader of Bengal.

**Mukund Rao :** He was a Maratha chieftain who was defeated by the Bijapur Sultan, Yusuf

**Adil Shah (1490-1510)** and made peace with the Sultan by giving in marriage to him his sister, who assumed the Muslim name of *Bubuji Khanam* and became the mother of the second Sultan, *Isma'il* (1510-34).

**Mularaja** : Founded the (Chalukya) kingdom of *Anhilwara* in Gujarat about the middle of the tenth century. His reign extended from A.D. 942 to 997.

**Mumtaz Mahal** : She was the daughter of *Asaf Khan*, the brother of *Nurjahan*, and the richest and most powerful noble during the reign of *Jahangir*. Her original name was *Arjumand Bano Begum*. She was married in 1612 to *Jahangir's* son *Prince Khurram* (later on *Emperor Shah Jahan*) and was given the name of *Mumtaz Mahal* (the ornament of the palace). The marriage proved very happy and *Mumtaz* bore to *Shah Jahan* fourteen children. It was on her tomb that *Shah Jahan* built the unrivalled monument called the *Taj Mahal*.

**Munim Khan** : Son of *Sultan Beg*, was the revenue minister of *Prince Muazzam* when he was the Governor of *Afghanistan*. In 1707 the Prince was at *Jamrud* when his father *Emperor Aurangzeb* died.

**Munni Begum** : The widow of *Nawab Mir Jafar* of *Bengal*, was originally a dancing girl whom *Mir Jafar* later on married. She was placed by *Warren Hastings* in charge of the *Nawab's* household and was later on even appointed as the guardian of the young *Nawab Mubarak-ud-daulah*.

**Muqarrat Khan** : His original name was *Shaikh Hasan* and he was a very trusted officer of *Emperor Jahangir* and was sent as the *Emperor's* ambassador to the *Portuguese* in *Goa* in 1607.

**Murad, Prince** : The second son of *Emperor Akbar* born of *Salima Begam* in 1571. held important commands in *Kabul* and in the *Deccan* where he secured the cession of *Berar* from *Ahmadnagar*. He was given to too much drinking and died of its effects in 1599.

**Murad Bakhsh** : The fourth and youngest son of *Emperor Shah Jahan* was born in 1624 of *Mumtaz Mahal* and developed into a brave young man.

**Murshid Quli Jafar Khan** : He was a *Persian* who entered the *Mughal* service and was sent to the *Deccan* with *Aurangzeb* as *Diwan* of the *Highlands*. In 1656 he was promoted to be the *Diwan* of the whole of the *Deccan*. In 1701 he was appointed as the *Diwan* in *Bengal*. After the death of *Aurangzeb* he was made the *Viceroy* of *Bengal*, *Bihar* and *Orissa* which he administered efficiently till his death in 1726.

**Murshid Quli Khan** : His title was *Rustam Jang*, was the deputy of *Nawab Shuja-ud-din*, the son-in-law and successor of *Murshid Quli Jafar Khan* in *Orissa*. He held *Orissa* in 1740 after *Ali Vardi Khan* had dispossessed the line of *Murshid Quli Jafar Khan* from *Bengal*. He was defeated and driven out of *Orissa* by *Ali Vardi Khan* in 1741.

**Murtaza Ali** : The *Nawab* of the *Camatic*, was deposed in 1743 by the *Nizam Asaf Jah* who placed *Anwar-ud-din* on the throne of the *Camatic*.

**Murtaza Nizam Shah I** : The fourth Sultan of the *Nizam Shahi* dynasty of *Ahmadnagar*, ruled from 1565 to 1586.

**Murtaza Nizam Shah II** : The tenth Sultan of *Ahmadnagar*, ruled from 1603 to 1630. He was helped in administration by *Malik Ambar* but lost the major portion of his territories to the *Mughals*.

**Muzaffar Jang** : He was the son of the daughter of *Nizam-ul-Malik Chin Qilich Khan*. On the death of the *Nizam* in 1748 he claimed the throne of *Hyderabad* in preference to his maternal uncle, *Nasir Jang*. He secured the support of the *French* under *Dupleix*. He also found a ally in *Chanda Sahib* who claimed the throne of *Arcot*.

**Nadira Begum** : She was the wife of *Prince Dara Shikoh*, the eldest son of *Emperor Shah Jahan*. She accompanied *Dara* in his fight after the battle of *Shamsherganj* and shared with him all his privations and hardships.

**Nagabhata I** : He was the founder of the *Gurjara Pratihara* dynasty. He is usually assigned to the eighth century, A.D. He upheld the power of his family against the *Arabs* of *Sind* and the *Chalukyas* and *Pashtrakulas* of the *Deccan*.

**Nagabhata II** : An early King of the *Pratihara* dynasty, invaded the *Gang*.



about A.D. 816, captured Kanauj, deposed the reigning king

**Nagarjuna :** He was the Buddhist author who flourished in the second century A.D. and probably enjoyed the patronage of King Kanishka. His two important works were the *Suhrillekha* and the *Madhyamakarikā*.

**Nagarjuna :** He was renowned Hindu chemist who flourished in the seventh- eighth centuries of the Christian era. He wrote *Rasaratnakara*. The Arabs derived much of their knowledge in chemistry from Nagarjuna's works.

**Nagasena :** He was the Buddhist sage or philosopher who is mentioned in the *Milindapanha* (Dialogues of Menander) as the learned person with whom Menander discussed the theories and principles of Buddhism.

**Nahapana :** A distinguished satrap of the Kshaharata family of the Sakas, ruled over Maharashtra with his capital at or near Nasik.

**Naidu, Mrs. Sarojini : (1879-1949) :** A most talented Indian lady, born of Bengali parents. She was a poet and orator who took a prominent part in Indian politics. She presided over the Cawnpore session of the Indian National Congress in



1915, and was the first lady to be appointed a Governor in the Republic of India

**Nana Fadnavis :** A Maratha Brahman esman, was in the Peshwa's service on the eve of the third battle of Panipat in which he was present but escaped death. His position was not easy, as his authority was opposed by the Maratha chiefs, especially by Mahadji Sindhia but he was clever enough to retain his power against all opponents.

**Nana Sahib (Dundu Pant) :** The adopted son of the last Peshwa, Baji Rao II. He lived with his exiled adoptive father at Bithur near Cawnpore and maintained very friendly terms with the English people of the locality. He could not give the mutinous 'sepoys' the leadership that they wanted. After the defeat of Tantia Tope and the recapture

of Gwalior by the British on 20 June, 1858, Nana Sahib escaped and frustrated all British efforts to capture him. He died an unknown death.

**Nanak :** The founder of the Sikh religion was born in 1469 in a Khatri family of Talwandi (modern Nankana) near Lahore. He preached the unity of Godhead and formalism of religion. His sayings and sacred songs composed by him form the sacred book of the Sikhs and is known as the *Granth Sahib*. He died in 1539.



**Nanda Kumar :** He was a Bengali Brahman holding the post of the Faujdar of Hughli in 1757 when the English under Clive and Watson attacked the French possession of Chandernagor in the vicinity of Hughli. After Plassey he rose to the favour of Nawab Mir Jafar and was honoured in 1764 by Emperor Shah Alam with the title Maharaja. In the same year he was appointed by the East India Company as the Collector of Burdwan in place of Warren Hastings who never forgave this replacement.

**Nao Nihal Singh :** He was a son of Khara Singh son and successor of Ranjeet Singh.

**Narsimha Varman :** The son and successor of the Pallava King, Mahendravarman I of Kanchi, also called Rajasimha, ruled from C. A.D. 625 to 645. He was the most successful and distinguished king of the Pallava dynasty. In A.D. 642 he defeated and killed the great Chalukya King Pulakeshin II and took Vatapi, the Chalukya capital. The Dharmaraja Ratha at Mamallapuram and the noble temple of Kailashanath at Kanchi were built by him.

**Narasimha :** He was the King of Gupta dynasty. His full name was Narasimhagupta Baladitya. He was the son and successor of Purugupta and ruled from C. A.D. 467 to 473.

**Nawaz Khan, Shah :** He was the Mughal governor of Ahmedabad during 1658 to 59. He gave shelter to Prince Dara when the prince came to the city in the course of his flight after his defeat at the battle of Samugarh.



Prince of Oddiyam who became a Buddhist monk. On the invitation of the Tibetan King Trisong Detsen he went to Tibet where he preached the Tantric form of Buddhism.

**Padmini** : The queen-consort of Rana Ratan Singh of Mewar, was exquisitely beautiful. According to Rajput tradition, Sultan Ala-ud-din Khalji was so attracted by Padmini that he invaded Chittor in 1303 in order to take forcible possession of the queen.

**Panagal, Raja** : He was the leader of the Justice or non-Brahman party and was appointed in 1921 as the Chief Minister in Madras in order to implement the constitution established by the Government of India Act, 1919. His ministry carried out some reforms in education and management of temples.

**Pandit, Mrs. Vijayalakshmi** : Born in 1900, was a talented daughter of Pandit Motilal Nehru. She held many high offices since Indian independence including the post of India's High Commissioner in England (1955-61) and India's Ambassador to the U.S.S.R. as well as to the U.S.A (1949-51). She was the president of the U.N. General Assembly in 1954.

**Pandita Ramabai (1858-1922)** : She was one of the few Indian ladies who availed themselves of Western education in the nineteenth century. She made a great impression on the Western world by her erudition and eloquence which earned her the title of "Saraswati".

**Pandit Rao** : He was one of the *astapradhan* (eight chiefs) who formed the ministry of Shivaji. He was the royal chaplain and was in charge of the religious affairs of the Maratha state.

**Panini** : The celebrated Sanskrit grammarian, flourished not later than the fourth century B.C. He was the author of the *Astadhyayi*, a most scientific grammatical work.

**Panini** : He was a poet who is to be distinguished from the grammarian. He was a Sanskrit poet of some merit.

**Pant, Govinda Ballabh** : He was one of the leading members and leaders of the Indian

National Congress. He became the Chief Minister in his native province of Uttar Pradesh after independence.

**Paragal Khan** : A general of Hussian Shah King of Bengal (1493-1519), was a patron of Bengali literature and patronised the composition of a Bengali version of the Mahabharata. Parameswar who was the earliest translator of the Mahabharata into Bengali.

**Paramardi (or Parmal)** : He was the last Chandella king (C.A.D. 1166-1203) of Tadjakbhar to enjoy the position of an independent king of importance.

**Paramartha (A.D.499-569)** : A famous Buddhist monk and scholar, wrote between A.D. 5 and 569. His famous book, *Life of Vasubandhu*, which he had given an account of the Buddhist Council convoked by Kanishka.

**Parantaka I** : He was the son and successor of the Chola King, Aditya, ruled from A.D. 900 to 949. He largely extended the boundaries of the Chola Kingdom by capturing Madura, the capital of the Pandiyas. He also invaded Ceylon.

**Parsvanath** : He was the twenty-third *Tirthankara* (step-maker i.e. patriarch) of the Jain religion. He flourished about two centuries before Mahavira. He founded the Jain religion and enjoined on his disciples the four vows of non-injury, truthfulness, abstention from stealing and non-attachment.

**Parviz, Prince** : He was the second son of the Emperor Jahangir. After his elder brother, Prince Khurram, was blinded, Parviz was recognised as the heir apparent and died in 1626.

**Patanjali** : He was the celebrated commentator on the Sanskrit grammar, the *Astadhyayi* of Panini on which he wrote the famous commentary known as the *Mahabhasya* (The Great Commentary). He is believed to have been a contemporary of king Pushyamitra Sunga and to have flourished in the second century B.C.

**Patanjali** : He was a great Brahmanical philosopher who wrote in Sanskrit the celebrated work, the *Yoga Sutra*.

**Patel, Vallabhbhai, Sardar (1875-1950)** : A renowned Indian patriot and politician, he was



born on the 31st, October, 1875 in Gujarat and began his career as a lawyer. He took a leading part in the Bardoli Satyagraha movement. In 1931 he became the president of the Congress. He joined the "Interim Government" set up in 1946 as the Home Member. He became the Home Minister and Deputy Prime Minister after independence and held the post till his death on the 15th December, 1950.

**Patel, Vithaldas Javeri (1873-1933) :** He was a great freedom fighter. The elder brother of Sardar Patel, he was born at Nadiad in Gujarat on the 27th September, 1873 died in Vienna on the 22nd October, 1933.

**Prabhakara Vardhana :** The king of Thaneswar, belonged to the Pushyabhuti dynasty and ruled towards the close of the sixth century. He died in 604 A.D. and was succeeded by his elder son, Rajyavardhana.

**Prabhavati Gupta :** A daughter of Chandra Gupta II (C.A.D. 380-413), was married to the Vakataka King, Rudrasena II.

**Prasad, Rajendra :** He was the first President of the Republic of India. Born in Bihar in 1884, educated at the Calcutta University, he began his career as an advocate and soon commanded a very large practice at Patna High Court. He became the president of Congress in 1934, 1939 and 1947; and became a minister in Nehru's cabinet in 1947. From 1946 to 1949 he presided over the Indian Constituent Assembly. In 1950 he was elected as the first President of the Republic of India and re-elected in 1952 and again in 1957.

**Prasad Rana :** He was the ruler of Amarkot in Rajputana, gave shelter to the fugitive Mughal Emperor, Humayun and his newly wedded wife Hamida Banu. Their son, Akbar was born at Amarkot under the protection of Rana Prasad in 1542.



**Prasenajit :** The king of Kosala in about the middle of the sixth century B.C., was a contemporary of Gautam Buddha and Vardhamana Mahavira both of whom paid visits to his kingdom.

**Pratap Sinha, Rana :** The son and successor of Rana Uday Sinha of Mewar, ruled from A.D. 1572 till his death on the 19th January, 1597. A great hero and a true patriot, he decided to stand against immense odds for the maintenance of the independence of his native land, Mewar against the much superior resources of Emperor Akbar.

**Praudha-Devaraya (also called Padea Rao) :** The last king of the first dynasty of the kings of Vijayanagar, was deposed in 1485 A.D. by Salwa Narasingha.

**Pravarasena II :** He was the son and successor of the Vakataka king Rudrasena II who had married Prabhavati Gupta, ascended the throne in about 410 A.D. and gradually threw off the Gupta domination.

**Prithviraj Chauhan (also called Rai Pithora) :** He was the King of Samrat Aggar and Delhi. His great Indian rival was Raja Jayachandra of Kanchi whose daughter, Sangukta, chose him as her husband against her father's wish and was forcibly abducted by Prithviraj in about A.D. 1175. He was defeated by Shihab-ud-din at the second battle of Tarain and killed. His deeds of love and valour are recorded by Chand Bardai in his work called *Chand Rasis*.

**Pulakeshin I :** The founder of the Chalukya dynasty of Vatapi or Badami in the Deccan, flourished in about the middle of the sixth century A.D.

**Pulakeshin II :** A grandson of Pulakeshin I and the fourth king of the Chalukya dynasty, ruled from 609-42 A.D. and was the contemporary and rival of king Harshvardhana whose invasion of the Deccan repulsed in A.D. 620. In 620 A.D. a very powerful monarch was defeated in the battle by the Pallava king, Narasimha.

**Purushottama Gajapati :** (A.D. 1470-97) belonging to the Gajapati dynasty, had to fight against the Bahamani as well as against the Barids.

**Purushottama** : A Hindu philosopher, was invited by Emperor Akbar to take part in the discussions held at the *Ibadat Khana* at Fatehpur Sikri in about 1580 A.D.

**Pushyagupta** : A vaishya, was appointed by Chandragupta Maurya as the *rashtriya* (High Commissioner) in Surashtra where he constructed the famous Sudarsana Lake by damming a stream.

**Pushyamitra Sunga** : The founder of the Sunga dynasty (C.185 B.C.) on the deposition of the Maurya dynasty. He repulsed successfully Orissa king Kharavela and the Indo-Greek king Menander.

**Qasim Barid** : The minister of the Bahmani Sultan Mahmud Shah (1482-1582). From 1492 Qasim Barid was practically the ruler of the residue of the Bahmani empire, consisting of the territory near the capital. He is regarded as the founder of the Barid Shahi Dynasty which ruled in Bidar till 1619.

**Qasim Khan** : A Mughal noble, was appointed by Emperor Shah Jahan (1627-59) as governor of Bengal with orders to exterminate the Portuguese traders who had settled in Bengal.

**Quli Qutb Shah** : A Turki officer who rose in the service of the Bahmani Sultan, Muhammad III (1463-82) under the patronage of his minister Muhammad Gawan. He withdrew from the Sultan's court after 1481 and declared himself the independent ruler of Golconda in 1518. The Qutb Shahi dynasty ruled there till 1687.

**Qutb-ud-din Aibak** : The first Muhammadan Sultan of Delhi. He occupied Delhi in 1193, ruled from 1206 till his death in 1210. He began the construction of the Qutb Minar.

**Qutb-ud-din Mubarak** : The last Sultan of the Khilji dynasty, was the son and successor of Sultan Ala-ud-din Khilji and ruled from 1316 to 1320.

**Radhakanta Deb, Raja, Sir (1794-1867)** : A well-known leader of the orthodox Hindu community in Bengal in the 19th century. He was opposed to social reforms, to the Brahma Samaj and even to the abolition of the *Sati*.

**Radha Krishna, Dr. Sarvapalli** : The second President of the Republic of India. He had

been appointed as the professor of Eastern Religions at the University of Oxford (1936-39). He was vice-chancellor of the Benaras Hindu University from 1939 to 1948. He was appointed as India's ambassador to the USSR in 1949. In 1962 he became the President of India.

**Raghujii Bhonsla** : The founder of the Bhonsla family of Nagpur. He was a rival and coadjutor to Peshwa Baji Rao I. He became an important member of the Maratha confederacy formed by Peshwa Baji Rao I. He obliged Nawab Alivardi Khan of Bengal to make peace.

**Raghujii II** : A grandson of Raghujii Bhonsla, was the head of the Bhonsla family from 1788 to 1816. He suffered defeat at the hands of the English at the battles of Assaye (August 1803) and Argaon (November 1803) and was compelled to make peace with the English by the treaty of Deogaon in December 1803.

**Raghunandan (also popularly called Smarta Bhattacharya)** : He was a famous writer on Dharmashastra, and flourished in the sixteenth century. He was a contemporary of Chaitanya Deva and was born at Nabadvipa in Bengal. His two noteworthy works are *Navya-Smriti* and *Astavinsshalitattva*.

**Raghunath Rao (often called Raghoba)** : The second son of the second Peshwa, Baji Rao I. During the Peshwaship of his elder brother, Balaji Baji Rao, he led a Maratha army into North India, and captured Sirhind in 1758 from Timur Shah and occupied Punjab. To fulfil his ambition to become Peshwa, he concluded a treaty with the English and thus began the First Maratha War (1775-1783) which was concluded by the treaty of Salbai.

**Rahmat Ali Chaudhury** : An educated Indian Muhammadan who coined the term 'Pakistan' in 1933 in Cambridge. His idea was later on taken up by M.A. Jinnah who made Pakistan a reality in 1947.

**Rahul** : The son of Buddha. When quite a boy he was initiated by his father into the life of a Buddhist monk.

**Rai Durlabh** : A Hindu general in the service

Nawab Siraj-ud-daula of Bengal. Along with Mir Jafar, he plotted a conspiracy against the Nawab with the object of placing Mir Jafar on the throne of Bengal with the help of the English. Rai Durlabh was appointed to be the Dewan of Bengal after the installation of Mir Jafar as the Nawab.

**Raja Ram** : The second son of Shivaji. He became *de facto* Maratha king from 1689. He courageously stood up against the Mughals and upheld Maratha Kingship-first from Jiyyi and later on from Satara-till his death in 1700.

**Raja Ram** : A rebellious leader of the Jats, rose against Aurangzeb's rule in 1685, plundered Akbar's tomb at Sikandara in 1688 but was defeated and slain by the Mughals in 1691.

**Raj Singh** : He was the Rana of Mewar. He gave protection to Ajit Singh, the infant son of Jaswant Singh of Marwar and to the latter's widowed wife and thus, incurred the hostility of Emperor Aurangzeb.

**Rajadhiraja I** : The son and successor of the Chola King, Rajendra I, was the *Yuvaraja* (crown Prince) from 1080 to 1044 A.D. and king from 1044 to 1054. He was defeated and killed by the Chalukya, Somiswara, at the battle of Koppam.

**Rajadhiraja II** : A later Chola king, ruled from 1163 to 1179.

**Rajagopalachari, Chakravarti** : A prominent Indian politician, was born in south India in 1879. He was the General Secretary of the Indian National Congress in 1921-22 and was a member of the Congress working committee. He was the Chief Minister of Madras from 1937-39 and again from 1952-54. He supported the idea of the partition of India into India and Pakistan as the price of Indian independence. He became the first Indian Governor of West Bengal in 1947-48 and then the first Indian Governor General of India from 1948-50. He was Home Minister of India from 1950 to 1951.

**Rajaraja I** : The Chola king (985-1018 A.D.) entitled the Great. He ruled over a kingdom which included not only the whole of the Madras Presidency and a large part of Mysore, but also Ceylon which he conquered in A.D. 1005.

**Rajaraja II** : A later Chola king, was son and successor of Kulottunga Chola II and ruled from 1146 to 1173.

**Rajasekhara** : A poet and dramatist, was born in the Deccan but enjoyed the patronage of the Pratihara kings of Kanauj. He was the teacher of the Pratihara king, Mahendrapal (A.D. 890-910). Of his four dramas three are written in Sanskrit and one, named *Karpura-Manjuri* in Prakrit.

**Rajasimha** : A later Pallava king (8th century), built many temples at Kanchi.

**Rajendra I** : The son and successor of the Chola King Rajendra the Great, ruled from A.D. 1012 to 1044. He conquered Lower Burma in A.D. 1025-27 and annexed the Andaman and Nicobar Islands. In 1023 he invaded Bengal and defeated its king, Mahipals. He is known as Gangaikondacholapuram.

**Rajendra II** : A younger son of the Chola king, Rajendra I, ruled from A.D. 1052-1064.

**Rajendra II (also called Kulottunga Chola II)** : The son of Ammangadevi, a daughter of the Chola king, Rajendra I, who had been married to a Chalukya prince, succeeded to the Chola throne in 1070. He died in 1122.

**Rajyamati** : The daughter of king Harshadeva (C.8th century A.D) of Salastambha dynasty of Kamarupa who was given in marriage to king Jayadeva of Nepal in about 759.

**Rajyasri** : The daughter of Prabhakaravardhan, King of Thaneshwar and sister of Emperor Harshavardhan she was given in marriage to Grahvarman, the Maukhari king of Kanauj.

**Ram Raja (or Ram Raya)** : He was the *de facto* ruler of Vijayanagar kingdom during the rule of Sadasiva Rao (1542-65). He was an able statesman and was determined to restore the power of the Vijayanagar empires which had lately declined. He was killed in the battle of Talikota (1565).

**Ram Singh** : The son of Raja Jai Singh of Amber, helped Shivaji I in his flight from Agra where Emperor Aurangzeb tried to keep the Maratha leader in confinement.

**Ramachandra Deva** : A king of Devagiri in the Deccan and belonged to the Devagiri dynasty.

## GENERAL KNOWLEDGE

He ruled from 1271 to 1309. In 1292 his kingdom was invaded by a Muhammadan army led by Alaaddin Khaliji.

**Raman, Dr. Sir Chandrasekhar Venkata :** He was an eminent Indian physicist of international repute. Born in 1888 in South India, he discovered a new optical effect, named after him (Raman's Effect) in 1928. In 1930 he was made a fellow of the Royal Society and was awarded the Nobel Prize for Physics. Designated as "National Scholar" in 1958, he died in 1970.

**Ramanand :** One of the earliest teachers of the Bhakti Cult, flourished during the fourteenth century A.D. Born at Allahabad, he preached the doctrine of Bhakti in Hindi.

**Ramanuja :** A celebrated philosopher and the most revered teacher of the Vaishnava Hindus of South India, flourished in the twelfth century A.D., resided at Srirangam near Trichinopoly within the kingdom of Chola king, Addhirajendra. The system that he preached is known as Visishtadvaita or Qualified Monism.

**Ramdas Samarth :** The guru or preceptor of Shivaji I (1627-80), exercised a great deal of influence in the shaping of Shivaji's career and character. He inspired Shivaji to give religious basis to the kingdom that he founded.

**Ramakrishna Paramahansa (1834-86) :** He was a very great spiritual teacher of the Hindus in modern times. Born in the district of Hooghly in Western Bengal he became attached to the temple of goddess Kali at Dakshineswar, near Calcutta, as a priest. Ramakrishna preached that as different words in different languages denote the same substance e.g. water. So Allah, Hari, Christ, etc. are different names under which the people worship the same great God, who is one. His two noteworthy disciples were Keshobchandra Sen and Swami Vivekanand.

**Ranade, Madhav Govinda (1852-1904) :** He was a prominent public man, reformer and scholar. He became a judge of the Bombay High Court. He became a devoted and enthusiastic member of the Prarthana Samaj of Bombay. He was one of the founders of the Widow Re-Marriage

Association in 1861 and of Deccan Education Society.

**Ranjit Singh, Maharaja (1780-1839) :** The founder of a Sikh kingdom in the Punjab. His father, Maha Singh, was the leader of the *Sakerchakia misl*. Ranjit Singh's kingdom extended from Peshawar to the Sutlej and from Kashmir to Sind.

**Raziya Sultana :** She was the only lady to occupy the throne of Delhi. She was the daughter of Sultan Iltutmish who nominated her as his successor. She was defeated and killed, along with her husband, in October 1240, by the jealous and orthodox Muhammadan nobles.

**Rai, Lala Lajpat (1865-1920) :** Indian national leader known as "*Lion of Punjab*". Founder editor of *Bande Mataram*, *The Punjabee* and *The People*. Died of injuries caused by police lathi-charge while leading a demonstration against Simon Commission at Lahore in 1920. Author of *Young India*, *the Arya Samaj* and *England's Debt to India*.

**Ramanujam, Srinivasa (1887-1920) :** Indian mathematician contributed to the theory of members.

**Ranga, N.G. (1901-1995) :** Indian freedom fighter served as a member of Parliament for a record number of 50 years and found a place in the Guinness Book of World Records.

**Reddy, G. Ram (1930-1995) :** Pioneer of distance education in India. Founder Vice-Chancellor of Andhra Pradesh Open University - India's first open university. Founder Vice-Chancellor of Osmania University, chairman of the UGC and ICSSR, winner of Commonwealth of Learning Award and International Council for Distance Education Award of Excellence.

**Roshanara, Begum :** The younger and second daughter of Emperor Shah Jahan and consort Mumtaz Mahal. She supported Aurangzeb during the succession war. She was a bitter opponent of her eldest brother, Dara.

**Roy, Bidhan Chandra (1882-1962) :** Indian national leader. He was the first Indian to obtain MRCP and FRCS in one calendar year, Mayor of

**Calcutta (1931), Chief Minister of West Bengal (1948-1962), he was awarded Bharat Ratna in 1961.**

**Roy, Ram Mohan, Raja (1772-1833) :** Born in the Hoogli district of West Bengal, he preached the unity of God, opposed caste distinctions, polygamy and *Sati* and forced widowhood of women who would like to remarry. He protested against the press regulations issued by Governor-General, Lord Hastings and against the *Jury Act* of 1827. Mughal Emperor Akbar II (1805-37) invested him with the title of Raja. He died at Bristol on the 27th September, 1833.



**Saha, Arati (1933-1994) :** First Asian Woman to cross English Channel in 1959 (from France to England). Achieved the feat in 16 hours and 20 minutes. First swimmer to win Padma Shri.

**Saha, Meghnad (1893-1956) :** Indian scientist, did research in astrophysics, propounded the theory of thermal ionisation and author of *History of Hindu Science*.

**Sapru, Tej Bahadur (1872-1949) :** He was a law member of Viceroy's executive council. Defended Indian National Army Prisoners of War in the famous Red Fort trial. First president of Indian Council of World Affairs.

**Sarabhai, Vikram (1919-1971) :** Chairman of Atomic Energy Commission, First Chairman of Indian National Committee for Space Research. Responsible for Equatorial Rocket Launching Station, Thumba, Thiruvananthapuram.

**Savarkar, V.D.C (1883-1966) :** Indian revolutionary leader. He founded *Mitra Mandal* aimed at achieving freedom by armed rebellion, founded Abhinav Bharat, started Free Indian Society in England (London). He was arrested in Nasik conspiracy case and sentenced to transportation for life and freed in 1937. Author of *Indian War of Independence*.

**Saadat Ali :** The Nawab of Oudh (1798-1814) was a brother of earlier Nawab Asaf-ud-Jaula (1775-97).

**Sa'adat Khan :** The Mughal Governor of Oudh, took advantage of the growing weakness of the imperial power, set himself up as the independent ruler of Oudh in 1724 and ruled over it till his death in 1739.

**Safdar Jang :** A son of the sister of Sa'adat Khan, succeeded the latter in 1739. Later on appointed as the *Wazir* by the Mughal Emperor.

**Sahu (or, Shahu) :** The grandson of the great Shivaji and successor of Shambhaji.

**Salim Chisti, Shakh :** A Muhammadan saint who dwelt at Sikri, near Agra. Akbar named his eldest son Salim in honour of the saint.

**Saluva Narasimha :** The founder and first king of the Saluva or second dynasty of the kings of Vijayanagar. He died in 1490-91.

**Samudragupta :** Son and successor of Chandragupta I, was the second emperor of the Gupta dynasty of Magadha. His reign extended from 330 to 380 A.D. His valiant deeds have been recorded on the Allahabad Pillar of Ashoka.

**Shankaracharya :** One of the greatest Hindu philosophers of the post-Gupta period, born in south India in the 8th century A.D. He was famous for his commentaries on the classical Upanishadas, the Bhagavad Gita and the *Brahma Sutra* of Badrayan on which he based the doctrine of pure monism (*advaita*).

**Sankaradeva :** The great Vaishnava reformer in Assam. Born in 1449 and died in 1569. He preached a purified Vaishnavism.

**Sarkar, Sir Jadunath (1870-1951) :** He was vice-chancellor of the Calcutta University and a renowned historian. His works on *Shah Jahan Aurangzeb* (in 5 volumes) and *The Mughal Empire* are recognised as standard.

**Sastri, Sri Aurobindo :** He was a leader of the Indian National Congress and became a member of the Council in 1912. He was also a member of the Imperial Legislative Council. He was a pioneer of the *Swadeshi* movement.

**Satyajit Ray :** An Indian filmmaker and actor. He is known for his films *Pather Panchali*, *The Apu Trilogy*, and *Charulata*.



time Achievement, Special Oscar and many other national and international awards. First Indian film maker to win "Legion d'Honneur", the highest civilian award of France.



**Sayyid Ahmed Khan, Sir (1815-98)** : He was a prominent leader of the Indian Muhammadans. Remained loyal to the British during the Sepoy Mutiny (1857-58), founded the Muhammadan Anglo-Oriental College at Aligarh in 1875. In 1920 the college was raised to the status of University and called the Aligarh Muslim University.

**Sen, Mihir (1930-1997)** : A lawyer by profession, he was the first Indian ever to have swam the English Channel (1966). Also swam across Gibraltar Strait and Palk Strait.

**Singh, Bhagat (1907-1931)** : Known as **Shahid-e-Azam**. Founded Naujawan Bharat Sabha. Exploded bomb in Central Legislative Assembly at Delhi on April 8, 1929. He was arrested and sentenced for life. He, along with Sukh Dev and Shivram Rajguru, was hanged on March 23, 1931 for participation in Lahore conspiracy.



**Singh, Nagendra (Died in 1988)** : First Indian President of International Court of Justice (1970). He was also the first Indian Judge of the court. First Indian recipient of World Justice Award and awarded Padma Vibhushan in 1973.

**Srinivas, M.N. (1916-1999)** : Renowned sociologist and awarded Padma Bhushan; was a pioneer in his field who contributed vastly for the development of social anthropology in India.

**Stephel Sequiera (Died on Sept. 10, 1998)** : Former Olympian and the first woman Arjun Award recipient.

**Shams-i-Siraj Afif** : The author of *Tarikh-i-Firoz Shah*. He was an officer under Firoz Shah.

**Shastri, Lal Bahadur (1904-1966)** : Prime Minister of India from May 1964 to his death on 11 January, 1966. He was conferred Bharat Ratna posthumously. He was a martyr for the cause of peace between India and Pakistan at Taskent.



**Sharif-Ulla, Haji** : A Muhammadan leader in the district of Faridpur (now in Bangladesh), started a movement for reforming Islam in East Bengal early in the nineteenth century.

**Shaukat Ali, Maulana** : A prominent leader and politician amongst the Indian Muhammadans. He along with his brother Muhammad Ali, led the Khilafat Movement in 1919-20. He also joined the Indian National Congress and the non-cooperation movement.

**Shivaji** : The founder of the independent Maratha kingdom. He was born in 1627 at Poona. Before his death in 1680, he had extended his dominions over the whole of the western Carnatic.



**Sher Khan Sur (1472-1545)** : Better known as Sher Shah, was emperor of India from 1539 to 1545 and established the Sur dynasty which ruled over north India till 1556.

**Tagore, Rabindranath (1861-1941)** : Indian poet, novelist, patriot, educationist, essayist, painter and philosopher. He founded Shantiniketan (now Viswabharati University) in Bengal. The first Asian to receive Nobel Prize on literature (for *Gitanjali* in 1913), he was the writer of National Anthems of India and Bangladesh. His other celebrated works include Gora,

Office, Home and the World etc.

**Tansen (1506-1589)** : An exponent of In-classical music, one of the Nav Ratnas in the of Akbar.

**Tata, J.R.D. (1929- )** : The doyen of Indian industry for several years, father of Civil Aviation in India, recipient of Bharat Ratna (1992) and UN Population Award (1992).

**Tata Jamshedji (1850- )** : Parsi industrialist and anthropologist. Father of Indian industry, founded Iron and Steel Company in Bihar.

**Teresa, Mother (1910-1997)** : Albanian born, became a citizen of India in 1962. She aided the Missionaries charity dedicated to the destitutes in Calcutta. She the recipient of world's awards including 1979 Nobel Prize and Bharat Ratna (1980), Honorary American Citizenship (November 1996).

**Tilak, Bal Gangadhar (1856-1920)** : Indian patriot and statesman, known as "Lokamanya". Organised Nationalist (Extremist) Party with Bal Lajpat Rai and Bipin Chandra Pal. Britishers called him "Father of Indian Unrest". He gave the clarion call *Swaraj is my birth right*. He was the founder-editor of *Mahratta* (English) and *Desari* (Marathi). He authored *Geetharahasyam*.

**Tope, Tantia (1814-1859)** : Took part in the Sepoy Mutiny of 1857 with Nana Saheb and Anandibai Lakshmi Bai of Jhansi.

**Tulsidas (1532-1623)** : Hindu religious teacher. In the *Ramacharitamanas*, he has



described the life story of Lord Rama.

**Uday Shankar (Died in 1977)** : He was the first Indian classical dancer to perform abroad. Choreographed *Radha-Krishna* with Anna Pavlova in Russia (mid 1920s). His *Kalpavanshi* (1948) is India's first ballet film, with maximum number of dance sequences.

**Valmiki** : Sanskrit poet. Author of the *Ramayana*.

**Varahamihir (A.D. 400)** : Indian astronomer, mathematician and philosopher. He was one of the nine gems in the court of Vikramaditya.

**Varma, Shyamaji Krishna (1857-1930)** : Indian nationalist leader and founder of India Home Rule Society (1905). Organised first commemoration of Sepoy Mutiny of 1857 in 1905 at London. Instituted travel scholarships for Indian intellectuals to visit abroad. India House in London, founded by him, was a centre of revolutionary activities. He died in exile at Geneva.

**Vidyasagar, Ishwar Chandra (1820-1898)** : Indian social reformer and educationist from Bengal and a pioneer in the field of primary education and widow re-marriage.

**Vivekananda, Swami (1863-1902)** : Disciple of Rama Krishna Paramahansa, and founder of Rama Krishna Mission at Belur. He championed the supremacy of Vedantic philosophy and his talk at the Chicago Conference of world religions in 1893 made westerners realise the greatness of Hinduism for the first time.

**Wadia, Ardaseer Curset Jee (1808-1877)** : A distinguished mechanical and marine engineer who became the first fellow of the Royal Society, London at the age of 33.

**Zafar, Bahadur Shah (1796-1882)** : He was the last ruler of the Mughal dynasty. He fought against the British in the First War of Independence in 1857. After his defeat, the British exiled him to Rangoon where he died. ■■



# IMPORTANT OPERATIONS

## International

**Operation Restore Hope :** This was started by the U.S.A. under the banner of United Nations. The objective of this operation was to end factional clashes in Somalia and to send food materials in Somalia.

**Operation Eagle :** Indian Peace Keeping Force (IPKF) started "Relief Dropping" process in Sri Lanka on 4, June, 1987. Under their process, medicine, food materials, clothings and other humanitarian needs were provided to Tamils.

**Operation Pawan :** This was started to wipe out LTTE establishment in Sri Lanka in the year of 1987, by Indian Army.

**Operation Cactus :** In November 1988, the timely action of Indian Army in Maldives, to save democratic government, which was dismissed by the military coup.

**Operation Desert Storm :** In 1991, this operation was started by multi-national military power, against Iraq, to free Kuwait.

**Operation Peace March :** Sri Lanka government started process to involve everyone in this peace march, to solve the fourteen (14) years old Tamil problem.

**Operation Topak :** This was started by Gen. Zia-ul-Haq of Pakistan in 1988, to recruit Indian youth for military training and financial incentive. After that, they would send back to create problem in India.

**Operation Leap Forward :** This was started by joint effort of Sri Lanka's army, navy and air force against the LTTE. establishment.

**Operation Over Load :** This was started fifty years ago, on 6 June, 1944, by USA to finish the last hideout of Nazis and Nazism in France. This was one of the difficult military operations in military history so far.

**Operation Taj :** This was being run jointly

by Pakistani, ISI, Bangladesh's secret agencies and Nepal Security Intelligence. These forces send arms and ammunitions, drugs, and other harmful material to India. That was basically confined to the border area of Bihar and West Bengal.

**Operation Sun-Shine :** The operation was started by Sri Lankan Army in 7, October, 1995, to capture 'Jaffna', which was considered the sole place of LTTE Operation in Sri Lanka.

**Operation Joint Endeavour :** NATO started this operation to impose peace agreement in Bosnia, on 14 December, 1995.

**Operation Check-Mate :** Under this operation, Indian Peace Keeping Force, destroyed one of the biggest hideouts of LTTE in Sri Lanka.

**Operation Development Effort :** American Naval Force started this operation to help those people, who had been effected by Cyclone in Bangladesh.

**Operation Foul-Eagle :** This was the joint military exercise of U.S.A. and South Korea. In this exercise, all three U.S. forces participated.

## National

### Punjab

**Operation Blue Star :-** It was started by Mrs. Indira Gandhi on 3rd June, 1984, monitored by Home Ministry of India. The objective of this military operation was to wipe out anti-national force from Golden Temple, Amritsar.

**Operation Search :** This military operation had same objective to throughout Pro-Khalistan forces from Golden Temple, Amritsar, because they declared independent country Khalistan on 29 April, 1984.

**Operation Midnight :** It was started on 18, January, 1987, jointly by Central Reserve Police and Punjab Police, to arrest terrorists, who were staying in surrounding areas of The Golden

Temple, Amritsar.

**Operation Black Thunder** : On 18 May, 1988, it was started again to free "The Golden Temple" from the anti-national forces and terrorists.

**Operation Rakshak** : Indian Army started this operation in December, 1990, to put a brake on terrorist activities in Punjab.

**Operation Demolition** : After Operation Black Thunder, there was a need to keep vigil on the activities of terrorists and their organisations. So, every houses were demolished which came under the circumference of 300 meters from the Golden Temple.

**Operation Job-Flood** : This was neither a military operation nor a governmental policy. It was resumed to generate more and more employment opportunities in Punjab, for creating an environment of positive engagements of unemployed youths.

**Operation Combing** : It was basically confined to disturbed areas of Punjab, to end the unlawful and especially destructive activities of terrorists.

**Operation Rakshak II** : This operation was jointly started by Army and security forces in mid-night of 19, Nov. 1991, to full control over terrorism in Punjab.

## Jammu and Kashmir

**Operation Goodwill** : To get the confidence of people, Indian army started this operation in Jammu and Kashmir.

**Operation Vikram** : This operation was a measure to stop terrorist activities and to establish peaceful environment.

**Operation Tiger** : On 7, September, 1992, this operation was started by security forces in Kashmir against terrorism and its forces.

**Operation Sawa** : This operation was to help those, who had left the state because of the of the Kashmiri terrorist forces.

**Operation Flash Out** : Indian army started operation to bring out terrorists from their hide in mountainous districts in Jammu. This

was a joint effort of Kashmir Security Force and Indian Army.

**Operation Cobra** : Under this operation, Indian Army adopted the methodology to attack terrorist in their hide-outs. This was basically a policy to dismantle the domination of terrorists in Jammu and Kashmir.

**Operation Hun Down** : This operation was surrounded in the areas of Doda, Magan, Sirongalli, Chatro, Sinthan and Kishtwar, with a clear objective to free these areas from terrorists and anti-national forces. This was launched jointly by Indian Army and State Security forces.

**Operation Psycho** : Indian Army decided to launch this operation to put psychological pressure, by not providing food and eatable materials, to terrorists and secessionist forces, who were hiding in Hazratbal shrine.

**Operation T-14** : This operation was known as anti-corruption movement and was started in April 1984.

## Uttar Pradesh

**Operation Green Star** : This operation was to pressurise noted dacoit of "Jambal" area, named Ramesh Sikarwar, to surrender in front of Police authority. This had begun in October of 1984.

**Operation Agni** : "Choose, Trace and Shoot" was the basic strategy of this operation. This was started against the terrorists of Terai region of Uttar Pradesh.

**Operation Action Centre** : Under this operation, security forces were sent with sophisticated weapons in terrorist affected areas of Uttar Pradesh.

**Operation Flash Out** : State Police and Central Reserve Police jointly launched this operation, to drive out "Kar Sevak" and to get control over disputed sites in Ayodhya.

## Bihar

**Operation Agnidoot** : Palamu district of West Champara was highly effected from destructive activities. Government of Bihar decided to launch operation against them

**Operation Task Force :** This operation was started by the government of Bihar to put a control over naxal movement.

**Operation Black Panther :** West Champaran is known as "Mini Chambal" in Bihar. The government started this operation to clean the area from dacoits but it proved an abortive effort.

**Operation Combining :** After gruesome massacre in Domaria, this operation was launched by Task force of Bihar, to identify those, who were involved in massacre.

**Operation Dhawantri :** This operation was to identify fake pharmaceutical industries and immediately took stern actions to destroy them without any delay.

**Operation Varun :** To solve the grim water crisis situation in Dhanbad district of Bihar.

**Operation Fair Election :** This operation was launched to ensure fair and free election of March, 1995, state assembly elections. In spite of this measure, there were widespread violence and looting of polling booths.

**Operation Todarmai :** This operation was meant to implement speedy implementation of land reform programme and fair distribution of land among landless farmers.

**Operation Ujala :** This measure was brought into action by District Magistrate, of Muzaffarpur district of Bihar, Ms Raj Bala Verma, to bring qualitative changes in life of women, who were engaged in flesh trade and prostitution.

**Operation Jaguar :** This was launched to free Kosi and Aangpadesh of Bihar, from unlawful activities of criminal elements

**Operation Siddhartha and Operation Rakshak :** This campaign was launched by the Government of Bihar to improve the socio-economic status of weaker sections.

**Operation Cobra :** This was started with a objective to eliminate "Mafia" and criminal group from Bihar.

**Operation John :** This operation was resumed to control the destructive elements and to destroy their establishment.

## Rajasthan

**Operation Khajri :** Under this operation, the Government of Rajasthan took initiative in planting "Prosopis Samereno" (Khajri) in desert part of this state, and to preserve it.

**Operation Jaembra :** This operation was surrounded in border area of western Rajasthan, to stop smuggling and trafficking

**Operation Cobra :** In the Barmer district of Rajasthan, house to house search was started to eliminate smuggler from these areas, where they were concentrated.

**Operation Brasstax :** This operation was basically a huge military exercise on 10 February, 1987 in border of Rajasthan.

**Operation Back-up :** This operation was started in Barmear and Jaisalmer districts of Rajasthan, to find out secret agents of Pakistan and to take preventive steps against them.

## Assam

**Operation Blue Print :** This operation was against the ULFA terrorists and to expose their destructive activities and anti-national attitudes in front of general public.

**Operation Kranti :** In Barpeta district of Assam, Indian Army started this operation against BODO terrorists and to provide security of public in this area.

**Operation Clout Burst :** The objective of this operation was to eliminate terrorists at any cost from Assam.

**Operation Bajrang :** This was one of the big operations against ULFA terrorists, started on 28th November, 1980. This operation was started by then Central Government after getting confirmation of involvement of few state ministers with ULFA establishment. At that time, Asom Gana Panshad was ruling the state and they were members of Council of Ministers.

## Other operations

**Operation Sahayta :** After attainment of independence, Army started this operation in Killari and Umarga area of Marathwada district. This

as one of the biggest operations to help the affected people.

**Operation Flood :** In 1970, under "World Food Program" a project was started, by which to increase the milk production and to adopt corrective measures of its distribution.

**Operation Black Board :** This operation was started under New Education Policy, to bring positive reform in elementary education, in India.

**Operation Green Gold :** This operation was started to increase the production of bamboo.

**Operation Kaito :** The Ministry of Finance of the Government of India started this operation against blackmarketers, black money in 1986.

**Operation Kalbharav :** After the request of the ministry of Finance, the Government of India started this operation to search out drugs, and drug traffickers.

**Operation Faith :** This was launched to destroy the effect of poisonous gas "Mithyl Isocina" (MIC) from the Union Carbide, Bhopal; in Dec. 1984.

**Operation Tiger :** This operation was started by Tamil Nadu Police for giving clear message to Tamil terrorists that India is against terrorist activities and their establishments.

**Operation Blue Revolution :** This operation was to solve fertilizer problem by motivating people to encourage fishing and angling.

**Operation Flood Light :** This operation was in Ernakulam district of Kerala to achieve hundred percent literacy rate. After this Ernakulam became the first hundred percent literate district in India.

**Operation Lotus :** This operation was to expose those who were involved in Bofors Kick back episode.

**Operation Excellence :** This operation was started to provide better and efficient training to Indian sport persons for better performance in 1990, Asian Games.

**Operation Re-call :** Indian Air Force conducts time to time exercise, which is otherwise known as Operation Recall. Under this operation, efficiency and punctuality of air force personnel are checked.

**Operation Black Rose :** Delhi Police

this operation to make strategy to face terrorists and their activities.

**Operation Search :** To put a brake on the activities of mafia, trafficking and smuggling, this operation was launched.

**Operation Good Boy :** Indian army started this operation to look after and welfare of the inhabitant of Ladakh region.

**Operation Amarnath Track :** In 1997, Indian Army started this operation to nab terrorists from the 49 Km of long way of Amarnath because terrorist organisation, Harkat-ul-Ansar did threaten to ban pilgrimage.

**Operation Tesri-Anankeh :** This operation was started on entire nation on 8 June, 1995 against triangular establishment and nexuses between anti-social, politician, and bureaucrats, which created a potential threat to internal security.

**Operation Sunny Vale :** Indian Army started a deadly campaign against the terrorists in Manipur on July 95, to control them.

**Operation Sun Shine :** This was a cleansing drive started in Calcutta against mega encroachment and to keep the city clean and healthy.

**Operation Research :** The Doctormaster programme of several local centres such as Mumbai, Calcutta, Delhi, Hyderabad, Chennai, Bangalore, were researched under this research programme.

**Operation Assault :** In Amravati district of Andhra Pradesh, a gas well was a deadly. The Initiative was taken to extinguish it. It was called "Operation Assault".

**Operation Khoj :** This operation was to identify income sources and assets of the rich of international border areas. It was started in 1995.

**Operation Mantra Aa :** This operation was initiated to nab those who were involved in one of the major terror attacks in India on 20 August 1995.

**Operation Naga Tare :** This operation was started by one of the special forces named Para Commando.

# Famous Awards and Prizes

## Nobel Prize

It is the most coveted international award of the world. The award was instituted by the inventor of dynamite, Alfred Bernard Nobel (1833-96). The award is given on 10th Dec. which is his death anniversary. Nobel made a trust from the money that he earned



Alfred Nobel

through the patent of his invention whose interest is used to give the money for the noble prizes. This award is being given every year to those eminent persons who have made pioneering achievements in the field of physics, chemistry, medicine, peace, literature and economics for the benefit of mankind. The Nobel Prize for Economics was instituted in 1967 and was first given in 1969. The other five prizes were being given since 1901. For Physics and Chemistry, Swedish Academy of Science gives the Nobel Prize. Stockholm Faculty of Medicine gives the Nobel Prize for Medicine whereas Swedish Academy of Literature gives the Nobel Prize for Literature. The awardee for the Nobel Prize for Peace is selected by a panel of five parliamentarians of Norwegian Parliament.

### Noble Peace Prize

- 1901 : Henri Dunant (Swiss) & Frederic Passy (French)
- 1902 : Elie Ducommun and Albert Gobat (Swiss)
- 1903 : Sir William Cremer (British)
- 1904 : Institute of International Law
- 1905 : Baroness Bertha von Suttner (Austrian)
- 1906 : Theodore Roosevelt (American)
- 1907 : Ernesto Moneta (Italian) & Louis Renault (French)
- 1908 : Klas Arnoldson (Swedish) & Fredrik Bajer (Danish)

- 1909 : Auguste Beernaert (Belgian) & Paul d'Estournelles (French)
- 1910 : Permanent International Peace Bureau
- 1911 : Tobias Asser (Dutch) & Alfred Fried (Austrian)
- 1912 : Elihu Root (US)
- 1913 : Henri La Fontaine (Belgian)
- 1914 -1916 : No award
- 1917 : International Red Cross
- 1918 : No award
- 1919 : Woodrow Wilson (US)
- 1920 : Leon Branting (French)
- 1921 : Karl Branting (Swedish) & Christian Lange (Norwegian)
- 1923-24 : No award
- 1925 : Sir Austen Chamberlain (British) & Charles Dawes (US)
- 1926 : Aristide Briand (French) & Gustav Stresemann (German)
- 1927 : Ferdinand Buisson (French) & Ludwig Quidde (German)
- 1928 : No award
- 1929 : Frank Kellog (US)
- 1930 : Nathan Soderblom (Swedish)
- 1931 : Jane Addams & Nicholas Butler (US)
- 1932 : No award
- 1933 : Sir Norman Angell (British)
- 1934 : Arthur Henderson (British)
- 1935 : Carl von Ossietzky (German)
- 1936 : Carlos de Saavedra Lamas (Argentina)
- 1937 : Viscount Cecil of Chelwood (British)
- 1938 : Nansen International Office for Refugees
- 1939-43 : No Award
- 1944 : International Red Cross
- 1945 : Cordell Hull (US)
- 1946 : Emily Balch & John Mott (US)
- 1947 : Friends Service Council (British) & American Friends Service Committee
- 1948 : No award
- 1949 : Lord John Boyd Orr (British)
- 1950 : Ralph Bunche (US)
- 1951 : Leon Jouhaux (French)

# IAS & PCS 2000

## **KRISP** *offers Prelims Course in* **HISTORY**

by

**K. KRISHNA REDDY**

for IAS & PCS 2000 (UP, MP, Raj. etc)  
from 4/2/2000 at

South Delhi

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IAS Study Centre  
*interactions*

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Kingsway Camp,  
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- 1952 : Albert Schweitzer (Alsatian)  
 1953 : George C. Marshall (US)  
 1954 : Office of the UN High Commission for Refugees  
 1955-56 : No award  
 1957 : Lester Pearson (Canadian)  
 1958 : Dominique Georges Pire (Belgian)  
 1959 : Philip Noel-Baker (British)  
 1960 : Albert Luthuli (South African)  
 1961 : Dag Hammarskjöld (Swedish)  
 1962 : Linus Pauling (US)  
 1963 : International Red Cross & League of Red Cross Societies  
 1965 : UNICEF (UN Children's Fund)  
 1966-67 : No award  
 1968 : Rene Cassin (French)  
 1969 : International Labour Organization  
 1970 : Norman Borlaug (US)  
 1971 : Willy Brandt (West German)  
 1972 : No award  
 1973 : Henry Kissinger (US), Le Duc Tho (North Vietnamese)- declined  
 1974 : Sean Mac Bride (Irish) & Eisaku Satō (Japanese)  
 1975 : Andrei Sakharov (Russian)  
 1976 : Betty Williams & Mairead Corrigan (British)  
 1977 : Amnesty International  
 1978 : Mohammed Anwar El Sadat (Egyptian) & Menachem Begin (Israeli)  
 1979 : Mother Teresa of Calcutta (Indian)  
 1980 : A. Perez Esquivel (Argentinian)  
 1981 : Office of the UN High Commissioner for Refugees  
 1982 : Alva Myrdal (Swedish) & Alfonso Robles (Mexican)  
 1983 : Lech Walesa (Polish)  
 1984 : Bishop Desmond Tutu (South African)  
 1985 : International Physicians for the Prevention of Nuclear War  
 1986 : Elie Wiesel (US)  
 1987 : Presi. Oscar Arias Sanchez (Costa Rican)  
 1988 : UN peacekeeping forces  
 1989 : The Dalai Lama (Tibetan)  
 1990 : Mikhail Gorbachev (Russian)  
 1991 : Aung San Suu Kyi (Myanmarese)
- 1992 : Rigoberta Menchu, (Guatemalan)  
 1993 : Frederik W. de Klerk, Nelson Mandela (S.African)  
 1994 : Yasir Arafat, Palestine; Shimon Peres, Yitzhak Rabin (both Isr.)  
 1995 : Joseph Rotblat (UK)  
 1996 : Roman Catholic Bishop Carlos Ximenes Belo and Jose Ramos Horta (East Timor.)  
 1997 : International Campaign to Ban Landmines (ICBL) and its Coordinator Jody Williams  
 1998 : David Trimble, John Hume (N. Ireland)  
 1999 : Doctors without Borders (MSF), and others in France.
- Economics**  
 1969 : Ragnar Frisch (Norwegian) and Jan Tinbergen (Dutch)  
 1970 : Paul Samuelson (US)  
 1971 : Simon Kuznets (US)  
 1972 : Kenneth Arrow (US) And Sir John Hicks (British)  
 1973 : Wassily Leontief (US)  
 1974 : Gunnar Myrdal (Swedish) and Friedrich Hayek (Austrian)  
 1975 : Leonid Kantorovich (Russian) & Tjallingii Koopmans (Dutch)  
 1976 : M. Friedman (US)  
 1977 : J.E. Meade (British) & B. Ohlin (Sw)  
 1978 : H.A. Simon (US)  
 1979 : Theodore W. Schultz and Arthur Lewis (US)  
 1980 : Lawrence Klein (US)  
 1981 : James Tobin (US)  
 1982 : George Stigler (US)  
 1983 : Gerard Debreu (US)  
 1984 : Sir Richard Stone (British)  
 1985 : Franco Modigliani (US)  
 1986 : James Buchanan (US)  
 1987 : Robert Solow (US)  
 1988 : Maurice Allais (French)  
 1989 : Trygve Haavelmo (Norwegian)  
 1990 : Harry Markowitz, Merton Miller & F. H. C. Sharpe (US)  
 1991 : Ronald H. Coase, Br. (US)

- 992 : Gary S. Becker (US)
- 993 : Robert W. Fogel, Douglass C. North (both US)
- 994 : John C. Harsanyi, John F. Nash (both US)
- 995 : Robert E. Lucas Jr. (US)
- 996 : James A. Mirrlees, UK and William Vickrey (Canada)
- 997 : Robert C. Merton (US) and Myron S. Scholes (US)
- 998 : Amartya Sen (India)
- 999 : Robert Mundel (Canadian)

## Physiology And Medicine

- 1901 : Emil Von Behring (German)
- 1902 : Sir Ronald Ross (British)
- 1903 : Niels Finset (Danish)
- 1904 : Ivan Pavlov (Russian)
- 1905 : Robert Koch (German)
- 1906 : Camillo Golgi (Italian) & Santiago Ramon Y Cajal (Spanish)
- 1907 : Charles Laveran (French)
- 1908 : Paul Ehrlich (German) & Elie Mechnikoff (Russian/French)
- 1909 : Emil Theodor Kocher (Swiss)
- 1910 : Albrecht Kossel (German)
- 1911 : Alvar Gullstrand (Swedish)
- 1912 : Alexis Carrel (French)
- 1913 : Charles Richet (French)
- 1914 : Robert Barany (Austrian)
- 1915-18 : No award
- 1919 : Jules Bordet (Belgian)
- 1920 : August Krogh (Danish)
- 1921 : No award
- 1922 : Archibald Hill (British) & Otto Meyerhof (German)
- 1923 : Sir Frederick Banting (Canadian) & John Macleod (British)
- 1924 : Willem Einthoven (Dutch)
- 1925 : No award
- 1926 : Johannes Fibiger (Danish)
- 1927 : Julius Wagner-Jauregg (Austrian)
- 1928 : Charles Bricolle (French)
- 1929 : Christiaan Eijkman (Dutch) & Sir Frederick Hopkins (British)
- 1930 : Karl Landsteiner (US)
- 1931 : Otto Warburg (German)

- 1932 : Edgar Adrian & Sir Charles Sherrington (British)
- 1933 : Thomas H. Morgan (US)
- 1934 : George Minot, William P. Murphy, & George Whipple (US)
- 1935 : Hans Spemann (German)
- 1936 : Sir Henry Dale (British) & Otto Loewi (German/Austrian)
- 1937 : Albert Szent-Gyorgyi (Hungarian)
- 1938 : Corneille Heymans (Belgian)
- 1940-42 : No award
- 1943 : Henrik Dam (Danish) & Edward Doisy (US)
- 1944 : Joseph Elinger & Herbert Gasser
- 1945 : Sir Alexander Fleming, Howard Florey, & Ernst Chain (British)
- 1946 : Hermann Muller (US)
- 1947 : Carl and Gerty Cori (US) & Bernardo Houssay (Argentinian)
- 1948 : Paul Muller (Swiss)
- 1949 : Walter Hess (Swiss) & Antonio Moniz (Portuguese)
- 1950 : Philip Hench & Edward Kendall (US), Tadeus Reichstein (Swiss)
- 1951 : Max Theiler (S. African/ American)
- 1952 : Selman Waksman (US)
- 1953 : Fritz Lipmann (German/American) & Hans Krebs (German/ British)
- 1954 : John Enders, Thomas Weller, & Frederick Robbins (US)
- 1955 : Hugo Theorell (Swedish)
- 1956 : Andre Courmand & Dickinson Richards Jr (US) and Werner Forssman (German)
- 1957 : Daniel Bovet (Italian)
- 1958 : George Beadle, Edward Tatum, & Joshua Lederberg (US)
- 1959 : Severo Ochoa & Arthur Kornberg (US)
- 1960 : Sir Macfarlane Burnet (Australian) & Peter Medawar (British)
- 1961 : George von Békésy (Hungarian/US)
- 1962 : Francis Crick & Maurice Wilkins (British) & James Watson (US)
- 1963 : Alan Hodgkin & Andrew Huxley (British) & Sir John Eccles (Australian)
- 1964 : Konrad Bloch (German/ American) & Feodor Lynen (German)

- 1965 : Francois Jacob, Andre Lwoff, & Jacques Monod (French)  
 1966 : Charles Huggins & Francis Peyton Rous (US)  
 1967 : Ragnar Granit (Swedish) & Haldan Hartline & George Wald (US)  
 1968 : Robert Holley, Hara Gobind Khorana, & Marshall Nirenberg (US)  
 1969 : Max delbruck, Alfred Hershey, & Salvador Luri (US)  
 1970 : Sir Bernard-Katz (British), Ulf von Euler (Swedish), & Julius Axelrod (US)  
 1971 : Earl Sutherland Jr (US)  
 1972 : Rodney Porter (British) & Gerald Edelman (US)  
 1973 : Karl von Frisch & Konrad Lorenz (Austrian) & Nikolaas Tinbergen (Dutch)  
 1974 : Albert Claude & Christian de Duve (Belgian) & George Palade (Romanian-American)  
 1975 : David Baltimore & Howard Temin (US), Renato Dulbecco (Italian)  
 1976 : B.S. Blumberg & D.G. Gajdusek (US)  
 1977 : Rosalyn Yalow, R. Guillemin & A. Schally (US)  
 1978 : W. Arber (Swiss), D. Nathans & H. Smith (US)  
 1979 : Godfrey Newbold Hounsfield (British) & Allen McLeod Cormack (US)  
 1980 : George Snell (US), Jean Dausset (French) & Barui Benacerra (Venezuelan)  
 1981 : David Hubel, Rober Sperry (US) & Torsten Wiesel (Swedish)  
 1982 : Sune Bergstroen, Bengt Samuelson (Swedish) & John Vane (British)  
 1983 : Barbara Mc Clintock (US)  
 1984 : Cesar Milstein (British), Geroge Kohler (West German) & Niels Jeme (Danish)  
 1985 : Michal Brown & Joseph Goldstein (US)  
 1986 : Rita Levi-Montalcini (American and Italian) & Stanley Cohen (US)  
 1987 : Susumu Tonegawa (Japanese)  
 1988 : Sir James Black (British) & Gertrude Elion & George Hitchings (US)  
 1989 : J. Michael Bishop & Harold E. Varmus (US)

- 1990 : Joseph Murray & Donald Thomas (US)  
 1991 : Edwin Neher, Bert Sakmann, both (Ger.)  
 1992 : Edmond H. Fisher, Edwin G.Krebs (both US)  
 1993 : Philip A. Sharp (US); Richard J. Roberts (Br.)  
 1994 : Alfred Q. Gilman, Martin Rodbell (both US)  
 1995 : Edward Lewis, Eric Wieschaus (both US); Christiane Nusslein Volhard (Ger.)  
 1996 : Peter Doherty (Aus.), Rolf Zinkemagel (Switz.)  
 1997 : Stanely Prusiner (US)  
 1998 : Robert F. Furchgott, Louis J. Igarro, Fend Murad (all US)  
 1999 : G. Blowbell (German)

#### Literature

- 1901 : Rene Sully Prudhomme (French)  
 1902 : Theodor Mommsen (German)  
 1903 : Bjornstjerne Bjornson (Norwe)  
 1904 : Frederic Mistral (French) And Jo Echegaray (Spanish)  
 1905 : Henryk Sienkiewicz (Polish)  
 1906 : Giosue Carducci (Italian)  
 1907 : Rudyard Kipling (English)  
 1908 : Rudolf Eucken (German)  
 1909 : Selma Lagerlof (Swedish)  
 1910 : Paula von Heyse (German)  
 1911 : Mauric Maesterlink (Belgian)  
 1912 : Gerhart Hauptmann (German)  
 1913 : Sir Rabindranath Tagore (Indian)  
 1914 : No award  
 1915 : Romain Rolland (French)  
 1916 : Verner von Heidenstam (Swedish)  
 1917 : Karl Gjellerup And Henrik Pontoppid (Danish)  
 1918 : No award  
 1919 : Carl Spitteler (Swiss)  
 1920 : Knut Hamsun (Norwegian)  
 1921 : Anatole France (French)  
 1922 : Jacinto Benavente (Spanish)  
 1923 : William Butler Yeats (Irish)  
 1924 : Wladyslaw Reymont (Polish)  
 1925 : George Bernard Shaw (Irish)  
 1926 : Grazia Deledda (Italian)  
 1927 : Henri Bergson (French)

- 1928 : Sigrid Undset (Norwegian)  
 1929 : Thomas Mann (German)  
 1930 : Sinclair Lewis (US)  
 1931 : Erik Karlfeldt (Swedish)  
 1932 : John Galsworthy (English)  
 1933 : Ivan Bruin (Russian)  
 1934 : Luigi Pirandello (Italian)  
 1935 : No award  
 1936 : Eugene O'Neill (US)  
 1937 : Roger Martin du Gard (French)  
 1938 : Pearl. S. Buck (US)  
 1939 : Frans Eemil Sillanpaa (Finnish)  
 1940-43 : No award  
 1944 : Johannes V. Jensen (Danish)  
 1945 : Gabriela Mistral (Chilean)  
 1946 : Hermann Hesse (Swiss)  
 1947 : Andre Gide (French)  
 1948 : Thomas Stearns Eliot (Anglo-American)  
 1949 : William Faulkner (US)  
 1950 : Bertrand Russell (English)  
 1951 : Par Lagerkvist (Swedish)  
 1952 : Francois Mauriac (French)  
 1953 : Sir Winston Churchill (English)  
 1954 : Ernest Hemingway (US)  
 1955 : Halldor Laxnes (Icelandic)  
 1956 : Juan Ramon Jimenez (Spanish)  
 1957 : Albert Camus (French)  
 1958 : Boris Pasternak (Russian)- declined  
 1959 : Salvatore Quasimodo (Italian)  
 1960 : Saint- John Perse (Alexis Saint-Lager) (French)  
 1961 : Ivo Andric (Yugoslavian)  
 1962 : John Steinbeck (US)  
 1963 : George Seferis (Giorgios Seferiades) (Greek)  
 1964 : Jean- Paul Sartre (French)-declined  
 1965 : Mikhail Sholokhov (Russian)  
 1966 : Shmuel Yosef Agnon (Israeli) and Nelly Sachs (Swedish) :  
 1967 : Miguel Angel Asturias (Guatemalan)  
 1969 : Yasunari Kawabata (Japanese)  
 1969 : Samuel Becket (Irish) :  
 1970 : Alexander Solzhenitsyn (Russian)  
 1971 : Pablo Neruda (Chilean) :  
 1972 : Heinrich Boll (W. German)  
 1973 : Patrick White (Australian)  
 1974 : Eyvind Johnson and Harry Edmund Martinson (Swedish)  
 1975 : Eugenio Montale (Italian)  
 1976 : Saul Bellow (US)  
 1977 : V. Aleixandre (Spanish)  
 1978 : Isaac Bashevis Singer (US)  
 1979 : Odysseus Epepoudhelis (Greek)- Known as Odysseus Elytis :  
 1980 : Czeslaw Milosz (US)  
 1981 : Elias Canetti (Bulgarian)  
 1982 : Gabriel Garcia Marquez  
 1983 : William Golding (British)  
 1984 : Jaroslav Seifert (Czechoslovakian)  
 1985 : Claude Simon (French)  
 1986 : Wole Soyinka (Nigerian)  
 1987 : Joseph Brodsky (Russian)  
 1988 : Naguib Mahfouz (Egyptian)  
 1989 : Camilo Jose Cela (Spanish)  
 1990 : Octavio Paz (Mexico)  
 1991 : Nadine Gordimer (S. African)  
 1992 : Derek Walcott (West Indian)  
 1993 : Toni Morrison (US)  
 1994 : Kenzaburo Oe (Jpn.)  
 1995 : Seamus Heaney (Ir.)  
 1996 : Wislawa Szymborska (Pol.)  
 1997 : Dario Fo (Italian)  
 1998 : Jose Saramago (Por.)  
 1999 : Guenter Grass (German)  
**Chemistry**  
 1901 : Jacobus van't Hoff (Dutch)  
 1902 : Emil Fischer (German)  
 1903 : Svante Arrhenius (Swedish)  
 1904 : Sir William Ramsay (British)  
 1905 : Adolf von Baeyer (German)  
 1906 : Henri Moissan (French)  
 1907 : Eduard Buchner (German)  
 1908 : Ernest Rutherford (New Zealand/British)  
 1909 : Wilhelm Ostwald (German)  
 1910 : Otto Wallach (German)  
 1911 : Mane Gurie (French)  
 1912 : Victor Grignard & Paul Sabatier (French)  
 1913 : Alfred Werner (Swiss)  
 1914 : Theodore Richards (US)  
 1915 : Richard Willstätter (German)

## GENERAL KNOWLEDGE

- 1916-17 : No award  
 1918 : Fritz Haber (German)  
 1919 : No award  
 1920 : Walther Nernst (German)  
 1921 : Frederick Soddy (British)  
 1922 : Francis Aston (British)  
 1923 : Fritz Pregl (Austrian)  
 1924 : No award  
 1925 : Richard Zsigmondy (German)  
 1926 : Theodore Svedberg (Swedish)  
 1927 : Heinrich Wieland (German)  
 1928 : Adolf Windaus (German)  
 1929 : Arthur Harden (British) & Hans von Euler-Chelpin (German/Swedish)  
 1930 : Hans Fischer (German)  
 1931 : Carl Bosch & Friedrich Bergius (German)  
 1932 : Irving Langmuir (US)  
 1933 : No award  
 1934 : Harold Urey (US)  
 1935 : Frédéric and Irene Joliot-Curie (German)  
 1936 : Peter Debye (Dutch)  
 1937 : Walter Haworth (British) & Paul Karrer (Swiss)  
 1938 : Richard Kuhn (German)  
 1939 : Adolf Butenandt (German) & Leopold Ruzicka (Swiss)  
 1940-42 : No award  
 1943 : George von Hevesy (Hungarian/Swedish)  
 1944 : Otto Han (German)  
 1945 : Aatturi Virtanen (Finnish)  
 1946 : James Sumner, John Northrop, & Wendell Stanley (US)  
 1947 : Sir Robert Robinson (British)  
 1948 : Arne Tiselius (Swedish)  
 1949 : William GIAUQUE (US)  
 1950 : Otto Diels & Kurt Alder (German)  
 1951 : Glen Seaborg & Edwin Mc Millan (US)  
 1952 : Archer Martin & Richard Synge (British)  
 1953 : Hermann Staudinger (German)  
 1954 : Linus Pauling (US)  
 1955 : Vincent du Vigneaud (US)  
 1956 : Sir Cyril Hinshelwood (British) & Nikolai Semenov (Russian)  
 1957 : Sir Alexander Todd (British)  
 1958 : Frederick Sanger (British)  
 1959 : Jaroslav Heyrovsky (Czech.)  
 1960 : Willard Libby (US)  
 1961 : Melvin Calvin (US)  
 1962 : Max Perutz & John Kendrew (British)  
 1963 : Max Ziegler (German) & Giulio Natta (Italian)  
 1964 : Dorothy Crowfoot Hodgkin (British)  
 1965 : Robert Woodward (US)  
 1966 : Robert Mulliken (US)  
 1967 : Ronald Norrish & George Porter (British) & Manfred Eigen (German)  
 1968 : Lars Onsager (US)  
 1969 : Derek Barton (British) & Odd Hassel (Norwegian)  
 1970 : Luis Leloir (Argentinian)  
 1971 : Gerhard Herzberg (Canadian)  
 1972 : Christian Anfinsen, Stanford Moore, & William Stein (US)  
 1973 : Ernst Otto Fischer (West German) & Geoffrey Wilkinson (British)  
 1974 : Paul Flory (US)  
 1975 : John Cornforth (Australian) & Vladimir Prelog (Swiss)  
 1976 : W.N. Lipscomb (US)  
 1977 : L. Prigogine (Belgian)  
 1978 : Peter Mitchell (British)  
 1979 : Herbert C. Brown (US) & George Wittig (German)  
 1980 : Paul Berg, Walter Gilbert (US) & Frederick Sanger (British)  
 1981 : Kenichi Fukui (Japanese) & Roald Hoffmann (US)  
 1982 : Aaron Klug (British)  
 1983 : Henry Taube (US)  
 1984 : Bruce Merrifield (US)  
 1985 : Herbert Hauptman & Jerome Karle (US)  
 1986 : Dudley Herschbach & Yuan Lee (US) & John Polanyi (Canadian)  
 1987 : Charles Pedersen & Donald Cram (US)  
 1988 : John Deisenhofer, Robert Huber & Hartmut Michel (West German)  
 1989 : Thomas R. Cech (US) & Sidney Altman (Canadian)  
 1990 : Elias J Corey (US)  
 1991 : Richard R. Ernst (Swiss)

- 1992 : Rudolph A. Marcus (Can. US)  
 1993 : Kary B. Mullis (US); Michael Smith (British-Canadian)  
 1994 : George A. Olah (US)  
 1995 : Paul Crutzen, F. Sherwood Rowland (both US)  
 1996 : Robert Curl Jr., Richard Smalley (both US) Sir Harold Kroto (Br.)  
 1997 : Paul Boyer (US) John Walker (Br.) Dane Jens Skou. (D. Mark.)  
 1998 : Dr. Walter Kohn (Austria-US) Dr. John A. Pople (Br. US)  
 1999 : Ahmed E. Zewill (Egyptian)

Physics

- 1901 : Wilhelm Roentgen (German)  
 1902 : Hendrik Lorentz & Pieter Zeeman (Dutch)  
 1903 : Pierre and Marie Curie & Henri Becquerel (French)  
 1904 : Lord Royleigh (British)  
 1905 : Philipp Lenard (German)  
 1906 : Sir Joseph Thomson (British)  
 1907 : Albert Michelson (US)  
 1908 : Gabriel Lippmann (French)  
 1909 : G. Marconi (Italian) & F. Braun (German)  
 1910 : Johannes Van der Waals (Dutch)  
 1911 : Wilhelm Wien (German)  
 1912 : Nils Gustav Dalen (Swedish)  
 1913 : Heike Kamerlingh-Onnes (Dutch)  
 1914 : Max von Laue (German)  
 1915 : Sir William H. Bragg & William L. Bragg (British)  
 1916 : No award  
 1917 : Charles Barkla (British)  
 1918 : Max Planck (German)  
 1919 : Johannes Stark (German)  
 1920 : Charles Guillaume (Swiss)  
 1921 : Albert Einstein (German/Swiss)  
 1922 : Niels Bohr (Danish)  
 1923 : Robert Millikan (US)  
 1924 : Karl Siegbahn (Swedish)  
 1925 : James Franck & Gustav Hertz (German)  
 1926 : Jean Perrin (French)  
 1927 : A. Compton (US) & C.T.R. Wilson (British)  
 1928 : Owen Richardson (British)  
 1929 : Prince Louis Victor de Broglie (French)

- 1930 : Sir Chandrasekhara Raman (Indian)  
 1931 : No award  
 1932 : Werner Heisenberg (German)  
 1933 : Erwin Schrodinger (Austrian) & Paul Dirac (British)  
 1934 : No award  
 1935 : James Chadwick (British)  
 1936 : Victor Hess (Austrian) & Carl Anderson (US)  
 1937 : C. Darissou (US) & G. Thomson (British)  
 1938 : Enrico Fermi (Italian)  
 1939 : Ernest O. Lawrence (US)  
 1940-42 : No award  
 1943 : Otto Stam (US)  
 1944 : Isidor Isaac Rabi (US)  
 1945 : Wolfgang Pauli (Austrian)  
 1946 : Percy Bridgman (US)  
 1947 : Sir Edward Appleton (British)  
 1948 : Patrick M.S. Blackett (British)  
 1949 : Hideki Yukawa (Japanese)  
 1950 : Cecil Frank Powell (British)  
 1951 : Sir John Cockcroft (British) & Ernest Walton (Irish)  
 1952 : Edward Purcell & Felix Bloch (US)  
 1953 : Frits Zernike (Dutch)  
 1954 : Max Born (German/British) & W. Bothe (German)  
 1955 : Polykarp Kusch & Willis Lamb Jr (US)  
 1956 : W. Shockley, W. Brattain & J. Bardeen (US)  
 1957 : Tsung Dao Lee & Chin Ning Yang (Chinese/American)  
 1958 : Pavel Cherenkov, Ilya Frank & Igor Tamm (Russian)  
 1959 : Emilio Segre & Owen Chamberlain (US)  
 1960 : Donald Glaser (US)  
 1961 : R. Hofstadter (US) & R. Mossbauer (German)  
 1962 : Lev Landau (Russian)  
 1963 : Eugene Wigner (US); Maria Goeppert-Mayer (German/American) & Hans Jensen (German)  
 1964 : Charles Townes (US), & Nikolai Basov & Alexandr Prokhorov (Russian)  
 1965 : Richard Feynman & Julian Schwinger (US) & Shin-ichiro Tomonaga (Japan)

## GENERAL KNOWLEDGE

- 1966 : Alfred Kastler (French)  
 1967 : Hans Bathe (US)  
 1968 : Luis Alvarez (US)  
 1969 : Murray Gell-Mann (US)  
 1970 : Hannes Alfvén (Swedish) & Louis Néel (French)  
 1971 : Dennis Gabor (British)  
 1972 : J. Bardeen, L. Cooper, & J. Schrieffer (US)  
 1973 : Ivar Giaever (American), Leo Esaki (Japanese) & Brian Josephson (British)  
 1974 : Sir Martin Ryle & Anthony Hewish (UK)  
 1975 : James Rainwater (US), Aage Bohr & Benjamin Mottelson (Danish)  
 1976 : B. Richter (US) & G. Ting (US)  
 1977 : Sir Nevill Mott (British), J. Van Vleck (US) & P. Anderson (US)  
 1978 : P. J. Kapitsa (Russian), A. A. Penzias (US) & R.W. Wilson (US)  
 1979 : Sheldon Glashow (US), Abdus Salam (Pakistan), & Stephen Weinberg (US)  
 1980 : James Cronin & Val Fitch (US)  
 1981 : Kai Siegbahn (Swedish), Nicolaas Bloembergen & Arthur Schawlow (US)  
 1982 : K. G. Wilson (US)  
 1983 : Subramanyan Chandrasekhar & William Fowler (US)  
 1984 : C. Rubbia (Italian) & Simon Van Der Meer (Dutch)  
 1985 : Klaus Von Klitzing (West German)  
 1986 : Ernst Ruska & Gerd Binnig (West German) & Heinrich Rohrer (Swiss)  
 1987 : K. Müller (Swiss) & J. Bednorz (West German)  
 1988 : Leon Lederman, Melvin Schwartz & Jack Steinberger (US)  
 1989 : Norman F. Ramsey & Hans G. Dehmelt (US) & Wolfgang Paul (West German)  
 1990 : Jerome I. Friedman & Henry W. Kendall (US)  
 1991 : Pierre-Gilles de Gennes (France)  
 1992 : Georges Charpak (Poland-France)  
 1993 : Joseph H. Taylor, Russell A. Hulse (both US)  
 1994 : Bertram N. Brockhouse (Can) Clifford G. Shull (US)

- 1995 : Martin L. Perl of Stanford University  
 Frederick Reins of the University of California-Irvine (both US)  
 1996 : David M. Lee, Douglas D. Osheroff  
 Robert C. Richardson (America)  
 1997 : Steven Chu, William D. Phillips, Both  
 Claude Cohen Tannoudji (Fr.)  
 1998 : Prof. Robert B. Laughlin, Prof. Hor  
 Stormer, and Prof. Daniel C. Tsui (All  
 1999 : G.T. Huft and J.D. Whittman (both are  
 Holand)

**Magsaysay Award** : This award was instituted by the Philippines government in the memory of its former President Ramon Magsaysay. The award is given every year for outstanding achievements in public service, journalism, literature, creative communication arts and international understanding. The award constitutes a gold plaque, 20,000 U.S. dollar and a citation. The award is being given since 1958.

**Pullitzer Prize** : This award was instituted in the memory of the Publisher of New York World Joseph Pulitzer. The award is being given since 1917 for international reporting, investigative reporting, photography, criticism, literature, history, feature writing, editorial writing and public service. The award constitutes 1000 Pound and a gold plaque.

The Pulitzer prize for public service this year has gone to *The Washington Post* for its series of incisive reportage on reckless gun play by the police officers. The national reporting prize went to *The New York Times* for a series of articles unveiling the corporate sell off of U.S. technology to China. Maureen Dowd, a columnist with *New York Times* won the Commentary Prize. *The Wall Street Journal* bagged the Pulitzer prize for international reporting for its coverage on Russian financial crisis. In the arts section *Hours* written by Michael Cunningham won the prize for the best fiction.

**Booker Prize** : This is the highest literary award of Britain. The award is given every year for outstanding literary works of writers in English from the Commonwealth countries. The award

comprise 20000 pounds (32000 U.S. dollars).

South African novelist, J.M. Coetzee is the recipient of this year's Booker Prize for his novel 'Disgrace'. He is the first writer to win the Booker twice. He had earlier bagged the prize for his novel 'The life and times of Michael K' in 1983. 'Disgrace' tells the tale of a professor who refuses to apologise for an impulsive affair with a student that cost him his job. He seeks refuge with his daughter on her farm where she is raped in a

savage attack that reveals the fault lines in their relationship.

**Right Livelihood Award** : This award was instituted in Sweden in 1980. The award is given for important contributions made towards environment and has a prize of 44.2 lakh rupees.

**Jawaharlal Nehru Award for International Understanding** : This award is given by the Indian government every year to those people who had done outstanding work to spread peace,

## Oscar Awards



## Oscar Awards

The most prestigious award for motion pictures is given by National Academy of Motion Picture Arts and Sciences of U.S.A. The awards are given for achievements in various departments of film making and mostly pertain to only films made in English languages. However there is one award in the Oscars which is for the best film in the foreign language, in which all the films made in a given year, in a language other than English, can compete and send in their entries. 'American Beauty', a dark comedy about suburban alienation and family dysfunction, won

five 72nd Annual Academy Awards, including for best picture, best director and best actor. The awards were given on March 26, 2000 at the Shrine Auditorium in Los Angeles. 'The Matrix', about a computer hacker who discovers life is a big illusion, bagged four Oscars for film editing, sound effects editing and visual effects. The academy also announced some special awards. Warren Beatty was named for the 'Irving Thalberg Award' for a high level of producing, and Andrzej Wajda, premier director of Poland, won an honorary award for showing both the loftiest heights and the darkest depths of the European soul.

**Best Picture** : American Beauty

- **Best Actor** : Kevin Spacey, American Beauty
- **Best Actress** : Biliary Swank, Boys don't cry
- **Best Supporting Actor** : Michael Caine, The Cider House Rules
- **Best Supporting Actress** : Angelina Jolie, Girl Interrupted
- **Best Director** : Sam Mendes, American Beauty
- **Best Original Screenplay** : Alan Ball, American Beauty
- **Best Original Song Award** : Phil Collins, 'You'll be in my heart' (Film Tarzan)
- **Best Cinematography** : Conrad L. Hall, American Beauty
- **Best Original Score** : John Congianno, The Red Violin
- **Art Director Trophy** : Sleepy Hollow
- **Best Foreign Film** : All about my mother, Spain
- **Animated Short Film** : The old man and the sea
- **Documentary Feature** : One day in September



friendship and solidarity in the world. The award is also given to the people who have contributed significantly in the field of public service.

**Crafoed Prize** : This prize is given by Royal Sweedish Academy of Sciences to those areas in which the Nobel Prizes are not being given. The award constitute 3,30,000 US dollar.

**Bharat Ratna** : It is the highest civilian honour in India. This award is given for outstanding works in the field of art, literature, science and public service. C. Rajagopalachari, S. Radhakrishnan and Dr. C.V. Raman were the first recipients of this award in 1954. Till now 34 eminent persons have bagged this coveted award. C. Subramanyam and M.S. Subulaxmi bagged the award in 1998. Jay Prakash Narayan (Posthumously), Prof. Amartya Sen, Gopinath Bardolai (Posthumously) and Pd. Ravi Shanker in 1999 are the last recipient of this award.

**Padma Vibushan** : It is the second highest civilian award in India after Bharat Ratna. The award is given for unparalleled and outstanding work in any field of public service. A government servant is also entitled to this award.

**Padma Bhushan** This is the third highest civilian award in India after Bharat Ratna and Padma Vibushan. This award is given to any person who has done extraordinary service in any field

**Padma Shri** : This is the fourth highest civilian award in India. It is also given to those persons who have made more than ordinary contributions in their chosen field. Till now many persons have won this award. Normally, every year a list of persons from various fields are chosen for Padmashri.

**Padma Awards** : Three-tier Padma awards Padma Vibhusan, Padma Bhushan and Padma Sri awarded to 79 distinguished persons. Padma Vibhusan for 7 persons, Padma Bhushan for 7 persons and 43 for Padma Sri Eminent recipients are Ratan Tata, Hanprasad Chaurasia, Pandit Jasraj, M.S Gill, R.K. Narayan, K. Kasturirangan, Sikander Bakht etc

**Bahadur Shah Zafar Award** : The Bahadur

Shah Zafar awards for Urdu writers were given to Prof. Al-e- Ahemed Suroor of Aligarh for 1998 and Prof. Mohammad Husain of Delhi for 1999. These awards are given annually on all - India Basis.

**Dada Saheb Phalke Award** : Veteran film maker B.R. Chopra was presented the prestigious Dada Saheb Phalke Award for 1998 at the National Film Festival award function at New Delhi.

**Sahitya Academy Award** : Twenty two writers in as many languages received the Sahitya Academy awards for 1998. They include Vinod Kumar Shukla (Hindi), A.K. Ramanujam (English), Nabaneeta Dev Sen. (Bengali), Abdul Rahman (Tamil), V.V. Subbaiah (Telugu), CV Sreeramam (Malyalam). Three awards were given posthumously to A.K Ramanujam (English), D.R. Nagray (Kanada) and Kuldeep Singh Jindhria (Dogri).

Other awardees were Medini Choudhan (Assamese), Niranjan Bhagat (Gujrati), Rashid Nazki (Kashmiri), Sarat Chandra Shenoi (Konkani), Saketananda (Maitihili), Lan Chenba Meetei (Manipuri), Ranganath Pathare (Marathi), Bikram Bir. Thapa (Nepali), Haraprasad Das (Oriya), Niranjan Tasneem (Punjabi), Vasu Acharya (Rajasthani), Srinivas Rath (Sanskrit), Vasudev Mohi (Sindhi) and Bashir Badr (Urdu).

**Golden Globe** : Jim Carrey won Golden Globe Award for best actor in 'Man On The Moon'. Janet Mc Teer won Golden Globe for Best Actress in 'Tumble weeds'.

**Ashok Chakra** : India's highest peace-time gallantry award, Ashok Chakra, has been awarded posthumously to Maj Sudhir Kumar of 9 Para (special force) for his gallantry in J and K during Operation Vijay. The Ashok Chakra, meant for gallantry other than in the face of the enemy, is equivalent to the war time award, Param Vir Chakra.

**Mahavir Chakra** : The second highest war time gallantry award, Mahavir Chakra, has been awarded to Sepoy. Imliakum Ao of the second battalion of Naga Regiment for his role during Operation Vijay in Kargil sector.

And as many as 506 armed force

personnel were awarded gallantry awards. The awards include one Ashoka Chakra, 24 Param Vishisht Seva Medals, 4 Kirti Chakras, one Uttam Yuddh Seva Medal, 2 Ati Vishisht seva medal, 44 Ati Vishisht Seva Medals, one Vir Chakra and 19 Shaurya Chakras, 5 Yuddh Seva Medals, 113 Sena medals, 3 Nao Sena medals, 3 Vayu Sena Medals, 18 Sena medals, 8 Nao Sena medals, 1 bar Vayu Sena medal, 13 Vayu Sena medals, 2 bars to Vishist Seva medal, 88 Vishisht Seva medals etc.

**Swedish Crafoord Prize 2000 :** R.N. Maini, an Indian, and Marc Feldman will be shared the Swedish Crafoord Prize for 2000.

**NTR National Film Award, 1999:** Lata Mangeshkar was awarded the NTR National Film Award for 1999 by the Chief Minister of Andhra Pradesh, N. Chandrababu Naidu.

**Golden Peacock Award :** The Golden Peacock Award for the best film by Asian director was bagged jointly by an Indian film "Karunam" and the Japanese film "Poppaya". The award carries a cash prize of Rs. 5 lakhs. Silver Peacock award goes to 'Nang Nak', a Thai film directed by Nonzee Nimibutr. The Chinese film 'Postmen in the Mountains' bagged the special Jury Award and a Silver Peacock and Rs. 2.5 lakhs.

**National Design Award .** The National Design Award for 1999 awarded to the Delhi Metro Project Director, Mr. E Sreedharan. The award instituted by the Institute of Engineers India, given to eminent design engineers every year for their outstanding contributions.

**Param Vir Chakra :** India's highest gallantry award, Param Vir Chakra, presented posthumously to Vikram Batra and Manoj Kumar Pandey and to nileman Sanjay Kumar and Grenadier Yogendra Singh Yadav for displaying valour during 'Operation Vijay' in Kargil. The first recipient of the Param Vir Chakra was Major Som Nath Sharma posthumously.

**Palmolive Femina Miss India 2000:** Lara Dutta, Priyanka Chopra and Diya Mirza won Femina Miss India- Universe, Femina Miss India-World and Femina Miss India-Pacific Quest

respectively on January 16, 2000. The contest being held in Pune.

**Sanskriti Awards:** The annual Sanskriti Awards given by the Sanskriti Pratisthan, a society for fostering art and culture has been announced. The recipients are: Baroda-based painter Anandajit Ray in the field of art, Omissi-dancer Sangeeta Dash for performing arts, Urdu writer Mohammed Aleem for literature, Praveen Swami for journalism and Anupam Sah for social and cultural achievement.

**Vyas Samman:** Hindi novelist Shreelal Shukla has been selected for the prestigious 'Vyas Samman' for his novel 'Bisrampur Ka Sanil'. The award, given annually by the K.K. Birla Foundation to an outstanding literary work in Hindi authored by an Indian citizen published during the past 10 years, carries a cash reward of Rs 2.50 lakhs and a citation.

**Sulabh Sahitya Akademi Award:** The Sulabh Sahitya Akademi Award 1999 has been given to the renowned litterateur Trilochan Shastri for excellence in trend-setting Hindi prose and poetry writings.

**Sakharov Human Rights Prize:** The European Parliament has awarded its 1999 Sakharov Human Rights Prize to the East Timorese independence leader, Mr Xanana Gusmao. The prize carries a cash award of 15,000 euro (\$15,000)

**Outstanding Parliamentarian Awards:** Pranab Mukherjee and S Jaipal Reddy were conferred with the outstanding parliamentarian awards for the year 1997 and 1998 respectively.

**Paulos Mar Gregorios Award:** The country's best known milkman, Dr. V Kurien was recently bestowed with the Paulos Mar Gregorios Award 1999 for community self renewal.

**Human Rights Award:** Ms Smrita Narula was conferred the Human Rights Award by the Chairman of the National Human Rights Commission Mr Justice J.S. Verma for her outstanding research and report on 'Caste violence against the untouchables'.

**Hafiz Ali Khan Memorial Awards.** So named British musicologist

and two well-known Indian artistes, flute player Hari Prasad Chaurasia and sitarist Ustad Imrat Khan, have been chosen for the Hafiz Ali Khan Memorial Awards for 1999.

**Forensic Science Award:** The prestigious Union Home Minister's Award for Forensic Science for 1998 has gone to Mr. T.R. Nehra, a distinguished forensic scientist working as Principal Scientific Officer in the Central Forensic Science Laboratory of the Central Bureau of Investigation. The award carries a cash award of Rs 25,000. Mr Nehra has been honoured for his contribution in the field of forensic documents examination which won him international recognition.

**Gandhi Peace Prize:** Noted social worker and Gandhian Baba Amte is the recipient of the coveted 'Gandhi Peace Prize' for 1999 for his exemplary work for treatment and rehabilitation of leprosy patients and his concept of the 'Shramik Vidyapeeth'. Instituted by the Centre, the award carrying a cash amount of Rs one crore, would be given by the President K.R. Narayanan in the first quarter of 2000. The previous recipients of the award are: Julius Nyerere, the former President of Tanzania, Mr A T Ariyaratne, founder president of the Sarvodaya movement in Sri Lanka, Mr Gerard Fischer of Germany and the Ramakrishna Mission.

**Dr. Ambedkar Vishista Seva Puraskar:** Social worker, Ms Poonam Singh, has been awarded the 'Dr Ambedkar Vishishta Seva Puraskar 1999' for her distinguished services in the field of social welfare and upliftment of dalits and downtrodden.

**Mrinalini Sarabhai Award:** The first Mrinalini Sarabhai Award for Classical Excellence, instituted by the Darpana Academy of Performing Arts, Ahmedabad, has been awarded to Kalamandalam Sivan Namboodiri of Kerala for his outstanding contribution to the ancient art of Koodiyattam. The award consists of a cash prize of Rs one lakh.

**India International Gold Award:** Mr M.Y. Khan, chairman, the Jammu and Kashmir Bank has been awarded the India International Gold

Award, 1999 for his performance in the field of banking.

**Aditya Vikram Birla Kalakiran Puraskar:** Leading flautist A.K.A Ronu Majumdar and tabla exponent Aneesh Pradhan have been awarded the first Aditya Vikram Kalakiran Puraskar. The awards carry a scroll of honour, a memento and Rs 35,000 each. Awarded for the first time, the Aditya Birla awards will be presented annually to two promising young artists, who are Indian citizens and between 25 to 40 years of age. Ronu Majumdar is hailed as one of India's front-ranking flautists while Aneesh has created his own distinctive style.

**NHRC Awards:** The book 'Manavadhikar-Dasha or Disha' in Hindi which gives a description on the status of human rights in India has bagged the first prize of Rs 25,000 awarded by the National Human Rights Commission (NHRC). The book is co-written by Mr Ramesh Chandra Dixit, Dr. Giriraj Shah, Mr Nishtar Khankahi and Dr. Giriraj Sharan Aggarwal.

The second prize of Rs 5,000 is for the book 'Taki Unka Bachpan Vapus Mil Sake' by Prof Girishwar Mishra of Delhi University. His book deals with the rights of children in India, both past and present. 'Swagat Hai Beti' by Mrs. Vibha Devsare, which deals with the traditional concept of the female child in Indian society, won the third prize of Rs 5,000.

**BBC Special Lifetime Achievement Award:** The BBC has given its most prestigious Special Lifetime Achievement Award to Professor Bhikhu Parekh. Prof. Parekh is one of the most eminent Asian academicians in Britain. He is the author of over a dozen widely-acclaimed books in political philosophy and has been a visiting professor at many universities including Harvard, Pennsylvania, McGill, Vienna and Barcelona. He has also been active in British public life since 1970.

**Tansen Samman:** Renowned vocalist Pandit C.R. Vyas is the recipient of this year's 'Tansen Samman' instituted by the Madhya Pradesh government for his outstanding contribution

to Hindustani classical music. Pandit Vyas has created several ragas including Shriv Abhogi and Dhankoni-Kalyan. The award carries a cash prize and Rs one lakh and a citation.

**Seva Chakra Award:** Dr. Shankar Dayal Sharma, former President has been honoured with the Seva Chakra award, the highest honour of the Indian Board of Alternative Medicine for 1999.

**Aditya Vikram Birla Kalashikar Puraskar:** Sarangi maestro Pandit Ram Narayan is the recipient of this year's Aditya Vikram Birla Kalashikar Puraskar. The award is instituted by the Sangeet Kala Kendra and comprise a prize of Rs 15 lakh and a memento.

**G.D. Birla Award:** Dr. K.Pal of the Indian Statistical Institute, Calcutta, has been selected for the ninth G.D.Birla Award for 1999 for his outstanding contribution in the field of machine intelligence. Dr Pal has been chosen for his contribution to pattern recognition, machine learning and image processing, using soft computing approach.

**Katha Chudamani Award:** Noted Hindi writer Krishna Sobti is the recipient of the first Katha Chudamani Award for her lifetime literary achievement. The award has been instituted by Katha, a voluntary organisation.

**JRD Tata Corporate Leadership Award:** The All India Management Association (AIMA) has conferred the prestigious JRD Tata Corporate Leadership Award on Mr Azim H Premji, chairman of Wipro. He is the fifth recipient of this award and is in recognition of his strong commitment to the twin dictum of 'Customer First' and 'Peoples Development' Instituted by the Tata Chem Golden Jubilee Foundation in 1995 and administered by AIMA, the award carries a rolling trophy and a cash citation apart from a cash component of Rs 1,00,000.

**Sri Chandrasekarendra Saraswati National Eminence Award:** India's renowned scientist Abdul Kalam, the Maharashtra Governor, Justice Alexander, eminent jurist Nani Palkiwala, and the late Mahatma Chakravarty Sant Morari Bapu have been honoured with the Sri Chandrasekarendra Saraswati National Eminence Award. The award

## 46th National Film Awards

- **Best Actor:** Ajay Devgan for his performance in film 'Zakhm' directed by Mahesh Bhatt.
- **Best Actress:** Shabana Azmi for God mother.
- **Best Popular Film Award:** Kuch Kuch Hota Hai directed by Karan Johar
- **Nargis Dutt Award for National Integration:** To Pooja Bhatt as producer of Zakhm
- **Best Supporting Actor:** Manoj Bajpai for his role in Satya.
- **Best Supporting Actress:** Suhasingi Mulay for her role in Gulzar's Hu Tu Tu.
- **Best Feature Film:** Samar by Shyam Behgel
- **Best Director:** T. Rajemath for Malayalam film Jnani
- **Best Child Artist:** Baby Swetha for Tamil film Malli
- **Best Female Playback Singer:** Alka Yagnik.



carries a citation, silver scroll and a cash prize of Rs 2.5 lakh.

**R&D Awards:** Six companies have been awarded this year's national awards for research and development. They are: Tata Engineering and Locomotive Company (TELCO), Themis Chemicals, Mumbai, Manatec Automations, Pondicherry Bharat Biotech International, Hyderabad, Associated Engineering Works, Tanuku, Andhra Pradesh, and Mitus Industries, Vapi

**Rajiv Gandhi Wildlife Conservation Award:** H.S. Panwar, founder director of the Wildlife Institute of India has been awarded the Rajiv Gandhi Wildlife Conservation Award for 1998. The award, instituted by the Ministry of Environment and Forests, consists of a trophy and a cash award of Rs one lakh

**Indira Gandhi Award for National Integration:** Former President Shankar Dayal Sharma has been selected for the Indira Gandhi Award for



this year's Dadasaheb Phalke award for his 'outstanding contribution' to film making. The award consists of a cash prize of Rs two lakhs, a 'swarna kamal' and a shawl. He gave commercial Hindi cinema a new life with films like Kanoon, Naya Daur and Dharmaputra. He also produced the hugely successful serial Mahabharata. He was also the first film maker to get the Best Director National Award for his film 'Hamraaz'.

**U Thant Prize:** The Nepalese Prime Minister, Mr Krishna Prasad Bhattarai, has been awarded this year's "U Thant Peace Prize" for his life-long commitment to peace and freedom.

**Lata Mangeshkar Award:** Noted playback singer Asha Bhosle has been selected for the Lata Mangeshkar award instituted by the Maharashtra government. The award, carries Rs. one lakh in cash and a citation.

**B.M. Birla Award:** Six scientists are the recipients of the B.M. Birla Award for Science for the year 1997. The scientists are

Prof. T.N. Venkataramana of the Tata Institute of Fundamental Research (TIFR), Mumbai for his outstanding research in the area of Number Theory; Dr Mohit Randeniya, Associate Professor, TIFR, Mumbai for his contribution in the area of condensed matter physics; Dr Madan Rao, Fellow in the Institute of Mathematical Sciences, Chennai; Dr Pratim Kumar Chattaraj, Professor, Indian Institute of Technology, Kharagpur; Dr Sanatanu Bhattacharya, Associate Professor, Indian Institute of Science, Bangalore; and Dr Anil Grover, Reader, Delhi University (Biology).

**Jamnalal Bajaj Awards:** The Jamnalal awards for this year in various categories have been announced. The recipients and the categories are as follows:

Prof. Sir Joseph Rotblat, a noted British physicist is the recipient of the Jamnalal Bajaj International award for promoting Gandhian values outside India. He is a leading champion of disarmament.

Mr Naryanan Desai of Sampooma Kranti Vidyalaya, is the recipient of the award in the field of constructive work.

Dr Ajoy Kumar Basu of Society for Rural Industrialisation, Ranchi is the recipient of the award for application of science and technology for rural development.

Ms. Saraswathi Gora of Atheist Centre, Vijayawada, is the recipient of the Janakidevi Bajaj Award for Uplift and Welfare of Women and Children.

Each of these awards, to be presented in November, consists of a citation, a trophy and a cash prize of Rs 2. lakhs.

**Vallathol Samman:** Professor S.Guptan Nair, noted Malayalam litterateur has been selected for the prestigious Vallathol Samman for 1999 in recognition of his life-time contribution to Malayalam literature. The award, instituted in memory of Mahakavi Vallathol Narayana Menon, comprises a cash prize of Rs 1,11,111 and a citation.

**UNESCO-NLM Award '99:** Three university departments of adult and continuing education of the country have been selected for the UNESCO-NLM Award '99 for their outstanding contribution to literacy. They are Vikram University, (Ujjain, M.P) Jadhavpur University, Calcutta, Gandhigram Rural Institute, Gandhigram, Tamil Nadu. The awards, instituted by UNESCO, Delhi and the National Literacy Mission carry a citation and a cash prize of Rs 21,000 each.

**Race Against Poverty Award I:** Six persons of various nationalities have been selected for the 'Race Against Poverty' award for their success in overcoming poverty or promoting the fight against it. They are Dietrich Fischer of Germany, Victor Estrada Quispe of Bolivia, Athana a Rwamo of Burundi, Abdullah Mohamed Omar Elgh of Egypt, Mookda Intrasan of Thailand and Eliz Alimovna Appazova of Ukraine.

**World Food Prize:** Dr Walter Plowright a British veterinary researcher, has been awarded the prestigious \$250,000 World Food Prize. 40 years after he developed a vaccine to end the world of rinderpest, one of the most lethal cattle diseases. Dr Plowright, now retired, was chosen for the award, which is equivalent to the Nobel Prize.

from among 4,000 nominees, for the vaccine he developed while working in Kenya and Nigeria between 1950 and 1964. The World Food Prize was first awarded in 1987 and this is the first time that this prize has been awarded to a veterinary scientist.

**Shanti Swarup Bhatnagar Awards:** Nine scientists have been selected for the Shanti Swarup Bhatnagar awards, for outstanding research. The prizes comprise a citation, a plaque and Rs 1 lakh cash award.

*The recipients are:* Siddhartha Roy of Bose Institute, Calcutta and V. Nagaraja, Indian Institute of Science, Bangalore for biological sciences; Ganesh Prasad Pandey, National Chemical Laboratory, Pune and Deb Shankar Ray, Indian Association for the Cultivation of Science, Calcutta for chemical sciences; R. Narasimhan of the Indian Institute of Science, Bangalore for engineering sciences; Rajeeva Laxman Karandikar of Delhi's Indian Statistical Institute for mathematical sciences; Chintalagini Mohan Rao of the Centre for Cellular and Molecular Biology for medical science; E.V. Sampathkumaran and Sunil Makhi of the Tata Institute of Fundamental Research, Mumbai for physical sciences.

**CSIR Award:** The CSIR Young Scientist Awards (the upper age limit for eligibility is mid thirties) has been awarded to three scientists- Alok K. Chakraverty of the Industrial Toxicology Research Centre, Suman Kuman Mishra of the National Metallurgical Laboratory, Jamshedpur and K. Yamuna Rani of the Indian Institute of Chemical Technology, Hyderabad

**Michael Madhusudan Award:** The Michael Madhusudan Award-1999 for the most eminent educationist has been given to Dr. A.P. Mathur, former Vice-Chancellor of Agra University. A scholar of repute, he is the author of many papers on history and other subjects.

**Birla Fellowships:** Hindi writer, Prof Prem Shankar and the Tamil scholar, Mr Ashokmitran have been offered the the K.K. Birla Foundation Fellowships in comparative Indian literature. Prof

Shankar will make an indepth study of the poem of Shri Sumitranandan Pant, whose centenary is being celebrated this year. Mr Ashokmitran will do a study on the origin and development of novels in Tamil, Telugu, Malayalam, Kannada and Bangla. The two-year fellowships (1999-2001) carry a tax-free stipend of Rs 9,000 per month each with a contingency grant of Rs 25,000 per year. The fellowship, instituted in 1994, is given every year to two scholars, writers or teachers to undertake studies on serious subjects in comparative Indian literature, a new and growing academic discipline.

**Right Livelihood Award:** The 1999 Right Livelihood award, often called an alternative Nobel Prize has been awarded to a Spaniard, a German and organisations from Cuba and Colombia. The shared 1.8 million Kronor (\$217,000) prize was awarded for contributions to sustainable agriculture, solar energy, indigenous rights and bringing dictators to justice. The Spanish lawyer Juan Garces is a recipient for his efforts to "end the impunities" of the former Chilean dictator, Mr Augusto Pinochet, and for his legal work leading to the arrest of Mr Pinochet in London in 1998.

**Prem Bhatia Award:** The Prem Bhatia Award for excellence in political reporting and analysis for 1999 has been given to Ms Seema Mustafa, Political Editor of *The Asian Age*. The award is given every year in recognition of cumulative professional achievement. The Prem Bhatia Scholarship for media-related research by young journalists has been awarded to Mr. Rajendra Bandhu, a freelance journalist from Madhya Pradesh, for his project on the present state and future direction of rural journalism.

**Amrita Devi Bishnoi Prizes:** The Amrita Devi Bishnoi prizes named after Amrita Devi who led those who sacrificed their life while protesting against a royal decree to cut down Khejri trees in village Khejari in Rajasthan. The prizes were instituted in 1997. The prizes were given to the following institution and individuals :

**Institution:** Forest protection and management committee of Nayakhedra village in Udaipur district

**Individual:** Mr Prasanna Puri Goswami (forest development) and Mr Narain Ram for the individual (wildlife conservation).

**Shram Awards:** 25 workers of various public sector organisations have been selected for the prestigious 'Shram' awards in recognition of their distinguished performance, innovative abilities, outstanding contribution in the field of productivity and exhibition of exceptional courage and presence of mind. There are various categories under the Shram awards. They are Shram Ratna, Shram Bhushan, Shram Vir Shram, Shri/Shram Devi.

Mr Dilip Krishnan of Singrauli super thermal power station in Uttar Pradesh has been awarded the Prime Minister's 'Shram Ratna' award for 1999. The award carries a cash prize of Rs 2 lakhs along with a citation.

**Rajiv Gandhi National Unity Award:** The Madhya Pradesh Housing and Environment Minister, Mr Indrajit Kumar, will receive this year's Rajiv Gandhi national unity award for his outstanding services in the social and political fields.

**Bharat Jyoti Award:** Noted veena player and Grammy Award winner, Pandit Vishwa Mohan Bhatt, has been awarded the Bharat Jyoti title for popularising Indian music worldwide by the American chapter of the Bharatiya Vidyapeeth.

**Rajendra Shahu Puraskar:** Justice P.B. Sawant, chairman of the Press Council of India has been awarded the Rajendra Shahu Puraskar. The award comprises Rs 25,000, a citation and a replica of Shahu Chhatrapati.

**Indira Priyadarshini Vrkshsamita Award:** Noted environmentalist and social worker, Anura Kumar has been awarded the Indira Priyadarshini Vrkshsamita Award for his role in creating awareness in protecting the ecology of Trichur.

## 44TH FILMFARE AWARDS



Best film	Kuch Kuch Hota Hai
Best Actor	Shah Rukh Khan (*)
Best Actress	Kajol (*)
Best Director	Karan Johar (*)
Best supporting actor	Saiman Khan (*)
Best supporting actress	Pari Mukherjee (*)
Lifetime Achievement Award	Mandir Kumar and Helen
Best playback singer	Sukhwinder
Best playback singer	Jaswinder Narula
Best music director	A.R. Rahman
Best song	Chays Chays
Best female newsreader	Pragy Zinta
Best male newsreader	Parveen Kaur
Best Story award	Manish Bhatt for Zakam
Best screenplay	Karan Johar for Kuch Kuch Hota Hai
Best villain	Anil Kapoor Para (Dushman)
Best comedian	Jimmy Lever
Best lyricist	Gulzar

### Critics' category

Best film	Sage
Best actor	Mandir Bappa
Best actress	Shafali Chaya

*Director: Shakti Kapur of Ekhasi (1999) and a special Filmfare award*

\*Kuch Kuch Hota Hai

### UNESCO's Literary Awards

India's National Literary Mission (NLM) has won UNESCO's prestigious Yashwantrao Chavan Literary Prize for 1999. UNESCO has announced four literary awards out of which the NLM has singled out for its efforts to galvanise activities towards



from among 4,000 nominees, for the vaccine he developed while working in Kenya and Nigeria between 1950 and 1964. The World Food Prize was first awarded in 1987 and this is the first time that this prize has been awarded to a veterinary scientist.

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**Right Livelihood Award:** The 1999 Right Livelihood award, often called an alternative Nobel Prize has been awarded to a Spaniard, a German and organisations from Cuba and Colombia. The shared 1.8 million Kronor (\$217,000) prize was awarded for contributions to sustainable agriculture, solar energy, indigenous rights and bringing dictators to justice. The Spanish lawyer Juan Garces is a recipient for his efforts to "end the impunities" of the former Chilean dictator, Mr Augusto Pinochet, and for his legal work leading to the arrest of Mr Pinochet in London in 1998.

**Prem Bhatia Award:** The Prem Bhatia Award for excellence in political reporting and analysis for 1999 has been given to Ms Seem Mustafa; Political Editor of *The Asian Age*. The award is given every year in recognition of cumulative professional achievement. The Prem Bhatia Scholarship for media-related research by young journalists has been awarded to Mr. Rajend Bandhu, a freelance journalist from Madhya Pradesh, for his project on the present state and future direction of rural journalism.

**Amrita Devi Bishnoi Prizes:** The Amrita Devi Bishnoi prizes named after Amrita Devi killed those who sacrificed their life while protesting against a royal decree to cut down Khejri trees in village Khejarli in Rajasthan. The prizes were instituted in 1997. The prizes were given to the following institution and individuals :





Kaul is the president of SOS Children's Village of India.

**Indira Priyadarshini Vrikshamitra Prize:**

The Duma-Ajaisar barren land development project in Ajmer district has been selected for the prestigious Indira Priyadarshini Vrikshamitra Prize by the Union Forest and Environment Ministry in recognition of an exceptional achievement made in land conservation. The project has covered about 7,400-hectare area falling in 10 villages and divided the land into six watershed areas.

**Paulos Mar Gregorios Award:**

Dr. Varghese Kunen, the pioneer of the white (milk) revolution in India, has been selected for the Paulos Mar Gregorios Award for 1999 in recognition of his work in community-based development, and rural development. Dr Kunen will be the second winner of this award, which carries Rs 1 lakh in cash and a citation. The first award was given to the Tibetan spiritual leader, Dalai Lama in 1977.

**C.K. Nayudu Award:**

Former Indian cricket captain and middle-order batsman Polly Umrigar has been unanimously selected for the prestigious Colonel C.K. Nayudu Award for the year 1998-99 by the Board of Control for Cricket in India (BCCI) for his contributions to cricket. The award carries a cash prize of Rs 2 lakh, a citation and a trophy.

**Modi Award:**

Noted scientist U R Rao has been selected for the G.M. Modi Award for his immense contribution to the field of science and technology. He is the former chairman of the space commission and presently is a professor at the Dr Vikram Sarabhai Space Centre, Mumbai. He is also a Padma Bhushan recipient. The award comprises a cash prize of Rs 1.1 lakh, a silver shield and a scroll of honour.

**Sarala Award:**

Noted Oriya novelist Bibhuti Patnaik has been awarded the prestigious Sarala award, for excellence in literature. The award carries a citation and a cash prize of Rs 50,000.

**Amnesty award:**

Noted Pakistani journalist and editor of *Friday Times*, Najam Sethi has been chosen for the 1999 Amnesty International 'special award for human rights journalism under threat'. The prestigious international award is given

to a journalist every year whose 'dedication exposing the truth at considerable personal cost'. Sethi was arrested in mid-May and detained, delivering a speech critical of Nawaz Sharif at a seminar in New Delhi.

**M.A. Thomas National Human Rights**

**Award:** Noted environmentalist and human rights activist, Ms Medha Patkar, has been selected for the M.A. Thomas National Human Rights Award for 1999 in recognition of her work in fighting those displaced due to the construction of the Sardar Sarovar project. The award comprises a cash prize of Rs 1 lakh and a citation.

**Golden Peacock Environment Management**

**Award:** The Rajasthan Atomic Power Station (RAPS) has bagged the coveted Golden Peacock Environment Management Award of the World Environment Foundation. RAPS won the award for environment protection during emergency coolant channel replacement (EMCCR) and safety upgradation carried out in its second nuclear power reactor. The task was accomplished only second time in the world and for the first time in a developing country.

**Sophie Prize:**

The Sophie Prize, one of the world's richest environmental awards has been awarded jointly to a US economics professor and an Indian who has campaigned for 25 years against over-fishing of the oceans. Mr Herman Daly of the University of Maryland and India's Mr Thomas Kocherry shared the annual \$100,000 Sophie Prize for their work on alternatives to economic globalisation and free markets. The prize was set up by Norway's Mr Jostein Gaarder, author of the international best seller *Sophie's World*.

**L.K. Bakshi Memorial Award:**

Bindeshwar Patnaik, founder of Sulabh International has been given the LK Bakshi Memorial Award 1999 in recognition of his role in promoting tourism and travel facilities. Dr Patnaik's work has been recognised for setting up sanitation facilities at various tourist centres all over India. The award instituted by Travel Media forum, carries a plaque and a citation.

**Templeton Prize:**

theologist and nuclear physicist Ian Barber has been awarded this year's 12 lakh 40 thousand dollar worth Templeton Prize for his singular contribution to the development of religion.

**Third World Academy of Sciences Awards in Basic Sciences:** B. Sriram Shastri of the Indian Institute of Science, Bangalore and Biman Bagchi from Calcutta have been selected for the above mentioned award for 1998. Shastri was chosen for his research on high temperature super conductors and Bagchi for his credit worthy work in liquid state dynamics. The awards comprise a cash prize of \$10,000 each.

**B.D. Goenka award:** Mr H.K.Dua, former editor of *The Indian Express*, *The Hindustan Times*, and *The Times of India* has been named winner of the B D Goenka Award for Excellence in Journalism. The award jury selected Mr Dua for the honour for the principled stand he took in defence of the editor's freedom in a newspaper. The award consists of a Konark Sun temple trophy, a citation scroll and Rs 1 lakh.

**Chowdaiah Award :** The celebrated violinist Kunnakudi Vaidyanathan was recently selected for T Chowdaiah Award. The award comprise a cash prize of Rs. 1.5 lakhs and is recognised as one of the highest state awards for excellence and high achievements in classical music.

**BAFTA Awards :** Australian actress Kate Blanchet won the best actress award for her role of Elizabeth in Shekhar Kapur's world famous film of the same name at the British Academy of Film and Television Arts (BAFTA) awards night. The film award was given to *Shakespeare in Love* but it was *Elizabeth* which swept away with the maximum number of awards. *Elizabeth* won five awards in all, including Best Cinematography, Best Make up, Film Music awards and the award for the Outstanding British film.

**Commonwealth Prize :** Australian writer Murray Bail has won the Commonwealth Writers Prize this year for his novel *Eucalyptus*. The award consists of a cash prize of \$ 10,000. Bail, after winning the award said that it was all a lottery.

**"Save the Girl Child" award :** Dr. Nameeta Gupta, the Head of Department of Paediatrics at Batra Hospital, New Delhi was awarded "Save the Girl Child" award for 1997, for her outstanding achievement of saving the life of a girl child in a moment of crisis. The award was conferred by the Sulabh International, a social service organisation.

**S.N. Bose Birth Centenary Gold Medal Award:** Sukumar Biswas, the principal scientist in the cosmic ray experiment to be jointly carried out by Tata Institute of Fundamental Research (TIFR) and ISRO on board NASA's space shuttle Spacelab-3 Mission has been selected for the S.N. Bose Birth Centenary Gold Medal Award for 1999 by the Indian Science Congress Association, Chennai, for his outstanding contributions.

**Gopi Krishan Award:** Noted Indian classical dancer Kumari Archana and Dr. Sudesh Dhamija have been selected for the Gopi Krishan National Dance award by the Shimla-based All India Artists Association. Archana, a versatile danseuse from Bhopal in Madhya Pradesh was selected for the award for her excellence in Bharatanatyam and Kuchipudi dances while Sudesh Dhamija bagged the award for 'creative direction' of traditional Haryanvi folk dances.

**UNESCO peace prize:** Bangladesh Prime Minister Sheikh Hasina Wajed and former US Senator George Mitchell have been named the winners of UNESCO's 1998 Houphouet-Boigny peace award. Mitchell helped broker last year's historic Northern Ireland peace accord while Sheikh Hasina in December 1997 signed a landmark peace deal with tribal leaders ending a 22-year insurgency that claimed at least 25,000 lives. The prize named after the late Ivorian head of state, carries 800,000 francs.

**Mahaveer Award :** Maneka Gandhi, the minister of state for Social Justice and Empowerment, has been selected for the 1999 Mahaveer Award. She has been recently selected for her contribution to human endeavors in the field of truth, nonviolence and promoting vegetarianism.

The award, which carries a cash prize of Rs. 5 lakh, a citation and a shawl, has been instituted by Bhagwan Mahavira Foundation.

**Om Prakash Bhasin Awards:** Five scientists have been selected for the Om Prakash Bhasin awards. The recipients are Dr Manju Sharma for Biotechnology, Dr Sankar Kumar Pal for Electronics and Information Technology, Dr. A. Seetharam for Agriculture and Allied Sciences, Dr M. Gourie Devi for Health and Medical Sciences and Dr. P. Ramachandra Rao for Engineering. The award carries a cash prize of 100,000 and is instituted by a NRI businessman Om Prakash Bhasin to stop brain drain from the country.

**Commonwealth Writer's Prize :** Manju Kapur, a teacher of English literature, has won the Commonwealth Writer's Prize for the Eurasia region for 1999 for her debut novel "Difficult Daughters." The novel is set in the partition years.

**Vishwabharati Award :** Prof. Batuknath Khiste, the renowned Sanskrit scholar and poet has been recently selected for Vishwabharati Award. The award comprises a cash prize of Rs. 1.5 lakh and a certificate.

**Vachaspati Puraskar :** The seventh Vachaspati Puraskar was awarded to Baneshwar Pathak for his poetic translation of the Bible titled *Yeeshu Charitam*. The award is instituted by the K.K. Birla Foundation and carries a cash prize of Rs. 75,000. It is given to any work in Sanskrit of outstanding merit during the last 10 years.

**Chameli Devi Jain Awards :** The Chameli Devi Jain Award given to outstanding women media persons has been bestowed to Ms Vasavi and Ms Pamela Philipose. Vasavi did commendable work in making people aware of the sorry state of the marginalised sections of society in Chhotanagpur with the might of her pen. Ms Pamela Philipose, the senior editor of *The Indian Express* is known for her matchless prose of rare humanistic appeal.

**Kalinga Awards:** This year's UNESCO Kalinga Prize was presented to Prof Ennio Candotto of Brazil and Ms Regina Paz Lopez. They have been chosen for their contribution in

## 45<sup>th</sup> Filmfare Awards presented on feb 14, 2000

*Sanjay Dutt* : Best Actor (Vaastav)  
*Aishwarya Rai* : Best Actress (\*)  
*Sanjay Leela Bansali* : Best Director (\*)  
*Amitabh Bachchan* : Filmfare Superstar of the Millennium  
*Vinod Khanna* : Lifetime Achievement Award  
*Hema Malini* : Lifetime Achievement Award  
*Anil Kapoor* : Best supporting Actor (Tall)  
*Sushmita Sen* : Best Supporting Actress (Biwi No.-1)  
*Govinda* : Best Actor in Comic role (Haseena Man Jayegi)  
*Ashutosh Rana* : Best Actor in Villain's role (Sangharsh)  
*Hum Dil De Chuke Sanam* : Best film of the year  
*A. R. Rehman* : Best music director (Tall)  
*Ismail Darbar* : R.D. Burman Award for Fresh Talent (\*)  
*Anand Bakshi* : Best Lyricist (Ishq bina kya jeena yaaron)  
*Alka Yagnik* : Best Male Playback Singer  
*Udit Narayan* : Best Male Playback Singer  
*Saroj Khan* : Best Choreography Award (\*)  
*Rakesh Ranjan* : Best Sound Recording (Tall)  
*Vinay Shukla* : Best story (Godmother)  
*Manoj Bajpai* : Critics Award (Best Actor, Shool)  
*Tabu* : Critics Award (Best Actress, Hu Tu Tu)  
*Rahul Khanna* : Best Male Newcomer (Earth)  
 (\*) *Hum Dil De Chuke Sanam*

popularising science. Prof Candotto made a series of popular lectures on science and was also the founder of a science monthly *Ciencia Hoje*. The magazine is regarded as a landmark in popularisation of science in Brazil. On the other hand, Ms Lopez has been instrumental in taking science to people at the grassroot level. She has produced four educational television programmes and spend more than a decade doing humanitarian work in the African continent and played an active role in establishing orphanages and children's homes. The Kalinga Prize was established in 1951 by UNESCO.

**German Human Rights Award:** Indian anti child labour activist, Kailash Satyarthi, has been chosen for the prestigious German human rights award. He is the first Indian to win this award. The Friedrich Ebert Stiftung institute which institutes the award has said that Satyarthi has been chosen in recognition of his special commitment to the protection of children against exploitation and slavery.

**41st Annual Grammy Awards :** Lauryn Hill was the star at this year's Grammy awards. She won five Grammy awards and outshone Madonna who got one less. The Titanic ballad, My heart will go on won four awards including Song and Record of the Year Award. Celine Dion got the best female pop vocal award for the song. The song also won the Best Song written for a motion picture or television.

Lauryn Hill's song Doo Wop(that thing) won best R-and B song and best R and-B vocal performance. Hill also won the coveted album of the year award for the song 'Miseducation of Lauryn Hill and also for best new artiste. It was actually the first time that a rap artiste had ever won a major album Grammy.

**Lata Mangeskar Award:** Well known music director Ilaiyaraaja has been awarded the Lata Mangeskar Award instituted by the Madhya Pradesh government. He has composed music for more than 4 000 songs in nearly 750 films in five languages over the past three decades.

**R.D. Birla awards:** Renowned astrophysicist Professor Ashoke Sen has been named for the prestigious R.D. Birla memorial award of the Indian Physics Association (IPA) for 1998. The award carries a citation, a gold medal and a cash prize of Rs 50,000.

**Shankar Puraskar.** The K.K. Birla foundation has selected Dr Ghashi Prabha Kumar's book *Vaisesika Darshana Mein Padartha Nirupana* for its prestigious Shankar Puraskar, on account of her outstanding work in the field of Hindi literature. The award, instituted by the foundation in June, 1992 carries a cash reward of Rs 1.5 lakh and is named after Aadi Shankaracharya. The

award is open to Indian-citizens only and is given for an outstanding work on Indian philosophy, art and culture that has been published during the last ten years.

**Mastroianni-Segal Award:** G.P Talwar, scientist emeritus at the International Centre for Genetic Engineering and Biotechnology, New Delhi has been awarded the Mastroianni-Segal Award by the World Academy of Art and Science in Cedex, France for his contributions in the fields of family planning and contraception. The award carries a cash prize of \$10,000.

**WWF Tiger Conservation Award:** Aswini Kumar Singh, a research officer at Orissa's Simlipal Tiger Reserve has been nominated for the World Wide Fund for Nature (WWF) Tiger Conservation Award for perfecting the pug-marked based head counting of tigers.

**National export award :** Bharat Heavy Electricals Limited (BHEL) has bagged the national export award for outstanding export performance during 1997-98. BHEL's export turnover including deemed exports touched an all time high of Rs 1784 crores registering a 39 percent rise over the previous year.

**Golden Globe Awards :** 56th Golden Globe awards were announced in a glittering ceremony at Beverly Hills. Steven Spielberg's humane portrayal of war *Saving Private Ryan* won the Golden Globe Award for the best dramatic movie. Spielberg was awarded the best director award also. One of the greatest comic actor of our times, Jim Carrey won the best drama actor award for his performance in *The Truman Show* and British actress Kate Blanchet got the best actress award for her sensitive portrayal of queen Elizabeth in Shekhar Kapoor's epical drama *Elizabeth*. The romantic comedy *Shakespeare in Love* swept three Golden Globe Awards. It won the award for the best screenplay, best actress in a comedy and the best comedy. Gwyneth Paltrow won the award for the best actress in a comedy for her scintillating performance in the above mentioned film. Marc Norman and Tom Stoppard won the award for the best screenplay. Ed Harris picked

up the award for best supporting actor for his performance in *The Truman Show* and the best foreign movie was awarded to the Brazilian film *Central Station*. Jack Nicholson was honoured with the Cecil B. DeMille award for lifetime achievement.

**Jnanpith Award:** Noted actor, playwright and film director Girish Karnad has been given the 1998 Jnanpith award for his outstanding contribution to the enrichment of Indian literature. Born in 1938, Girish Karnad has written and directed a wonderful repertoire of plays of rare insight and innovative approach on various facets of life. *Tuglaq* and *Naga Mandala* were his famous plays. He is the seventh Kannada writer to win this prestigious award.

**Lifetime achievement award:** Bernardo Bertolucci, the talented Italian film maker who directed such films as *The Last Emperor*, *Little Buddha* was recently honoured with the lifetime achievement award at the international film festival at Hyderabad.

**Sangeet Natak Akademi awards:** The prestigious Sangeet Natak Akademi awards were given to 23 eminent artists, who have excelled in the field of dance, music and theatre. They were given the awards in recognition of their contributions in their respective fields.

The awardees included 12 musicians, six dancers and five theatre personalities. The musicians who were given the award are Laxman Krishnarao Pandit (Hindustani vocal), Lalji Raghunath Gokhale (tabla), M. Balasubramaniam Sarma (Camatic vocal), Tiruvengadam Rukmini (violin), Kesi Narayanswamy (flute) and Satish Bhatic (creative).

In the dance and theatre categories the award was given to Kanaka Srinivasan (Bharatnatyam), Gangadhar Pradhan (Odissi), M. Vasudevan Nair (Kathakali), Tondon Devi (Manipuri), Rajkumar Bhogen Singh (acting), Bhanu Bhatti (direction), H.S. Shiva Prakash (playwright), Moti Lal Kemu (playwright) and Manushk Prabhuji Joshi (other aspects of theatre).

Noted playwright Badal Sircar was selected for the Akademi fellowship. Among other recipients

of the award were Arghya Sen (Rabindra Sangeet), Pithukuli Murugadas (bhajan), Y.Ranjana Devi (natya sankirtan), Keshav Laxman Badge (gondhal) and P.R. Thilagam (kuravanji).

**Aditya Vikram Birla Kalashikar Puraskar:** Guru Shri Kelucharan Mahapatra has been awarded A.V Birla Kalashikar Puraskar by the Sangeet Kala Kendra for his lifetime achievement in the field of classical dance. The award was instituted to honour excellence of highest order in visual and performing arts. It was instituted two years ago and the last two awardees were Lata Mangeskar and M.F. Hussain.

**Agro-Forestry Award:** Two Pune-based researchers, Dr. A. F. Mascarenhas and Dr. R. S. Nangauda have been selected for the prestigious "Agro-Forestry Award" for 1998.

The award, instituted by the Cooperative Agro Forestry Federation is given for outstanding dedication in the field of research related to agriculture. The awards, carry a cash prize of Rs. one lakh and 'Tamra Patra'.

Dr. Mascarenhas, heads the plant tissue culture group at National Chemical Laboratory (NCL) of the Council of Scientific and Industrial Research (CSIR). Dr. Nadgauda, also with the NCL, is working on tissue culture research plants and trees belonging to diverse taxonomic groups, including turmeric ginger, banana, sugarcane and cardamom.

**B M Birla Award:** Three scientists from Bangalore namely Dr. Sundaram Thangavelu, Dr. Sriram Rameshwary and Jayant B. Udayanekar and two from Mumbai, namely Dr. Gaulam Kumar Lakiri and Samabssivaro Kelha, an assistant and associate professor at the IIT Mumbai respectively, bagged the B M Birla Science awards for 1996. The award carries a cash prize of 50,000 and is given to scientists below 40 years, who have made original contribution in their respective fields.

**Indira Gandhi Prize:** Mohammed Yunus, the pivotal force behind rural banking since decades, has been awarded Rs. 25 lakh Indira Gandhi Prize of 1998, for peace, disarmament and development. He is presently the chairman of Bangladesh's Grameen Bank. ■■



## Famous Authors and Their Works

### Authors : Works

*Aristotle* : Ethics, Politics, Metaphysics etc.  
*Arnold, Matthew* : Sohrab and Rustum, Scholar Gipsy, Essays in Criticism, Culture and Anarchy, Rugby Chapel.

*Abul Fazal* : Akbar-Ain-i-Akbari, Akbar-namah.  
*Ghosh, Aurobindo* : Life Divine, Essays on Gita and Savitri etc.

*Anand, Mulk Raj* : The Village, The Golden Breath, The Coolie, Two Leaves and a Bud.

*Angell, Norman* : The Great Illusion.

*Azad, Maulana Abul Kalam* : India Wins Freedom

*Boswell, James* : Life of Dr. Johnson.

*Bana Bhatt* : Kadambari, Harshacharita.

*Bronte, Charlotte* : Jane Eyre, The Professor.

*Bronte, Emily* : Wuthering Heights.

*Bunyan, John* : Pilgrim's Progress.

*Burke, Edmund* : The Sublime and the Beautiful, Reflections on the French Revolution.

*Byron, Lord* : Child Harold, Don Juan.

*Barnie, J.M.* : Peter Pan, What Every Women Knows, A kiss of Cinderella.

*Buck, Pearl S.* : The Good Earth, House Divided, The Patriot.

*Comte, Honor de* : The Human Comedy, Eugenic del

*Dante, Giovanni* : Decameron.

*Bethoven, L.* : Moonlight Sonata, Fidelio and the Ninth Symphony

*Butler, Samuel* : The Way of All Flesh, Erewhon.

*Burton, Sir Richard* : Arabian Nights

*Besant, Mrs Annie* : Wake Up India, The Theosophy, Death and After, Reincarnation, etc

*Camus, Albert* : The Plague, The Rebel.

*Carlyle, Thomas* : Heroes and Hero Worship Past and Present, French Revolution, Sartor Resartus

*Carroll, Lewis* : Alice's Adventure in Wonderland, Through the Looking Glass

*Chaucer, Geoffrey* : The Canterbury Tales.

*Coleridge, Samuel Taylor* : The Ancient Mariner.

*Kublai Khan, Christabel*

*Cervantes, Miguel De* : Don Quixote.

*Bankim Chandra* : Anandmath, Kapal Kundala

*Durgesh Nandini, Vish Vriksha, Chandra Shekhar*

*Chekov, Anton* : The Cherry Orchard, The Three Sister.

*Corbett, Jim* : Man Eaters of Kumaon.

*Darwin, Charles* : The Origin of Species, Descent of man.

*Defoe, Daniel* : Robinson Crusoe.

*Dickens, Charles* : Oliver Twist, Pickwick Papers

*David Copperfield, A Tale of Two Cities.*

*Doyle, A. Conan* : Adventures of Sherlock Holmes

*Dumas, Alexandre* : Three Musketeers.

*Dostoevsky* : Crime and Punishment.

*Dante, A.* : La Divine Comedia (The Divine Comedy), Inferno.

*Dryden, John* : All for Love, Absalom and Achitophel.

*Eliot, George* : Silas Marner, The Mill on the Floss, Middlemarch.

*Eliot, T.S.* : Murder in the Cathedral, Confidential Clerk, Wasteland, Family Reunion.

*Faulkner, William* : The Sound and the Fury, Sanctuary, The Town and The Mansion.

*Fielding, Henry* : Joseph Andrews, Jonathan Wild, Tom Jones

*Fitzgerald, Edward* : Rubaiyat of Omar Khayyam

*Fischer, Louis* : The Great Challenge, A Week with Gandhi

*Firdausi* : Shahnama.

*Forster, Edward. M.* : A Passage to India, Maurice

*Goibbon, Edward* : The Decline and Fall of the Roman Empire.

*Goldsmith, Oliver* : The Traveller, The Desert Village, The Vicar of Wakefield, She Stoops to Conquer.

*Gray, Thomas* : Elegy Written in a Country Churchyard.

*Goethe, J.W.* : Faust, Wilhelm Meister.

*Galsworthy, John* : Forsyte Saga, Justice, Escapes, Strife.

*Gandhi, M. K.* : The Story of My Experiments With Truth, Indian Home Rule, Conquest of Self, Self-restraint vs Self-indulgence. My Early Life, Non-violence in Peace and War..

*Gorky, Maxim* : Mother.

*Ghalib* : Urdu and Parsian

*Gunther, John* : Inside North Africa, Inside Europe, Inside Europe Today.

*Hazlitt, William* : The Round Table, Table Talk.

*Hardy, Thomas* : Tess of the D'Urbervilles, Far from the Madding Crowd, Under the Greenwood Tree. A Pair of Blue Eyes.

*Hemingway, Ernest* : The Old Man and the Sea.

*Huxley, Aldous* : Anti Hay, Ends and Means, Travel Book, Grey Eminence, Brave New World Revisited.

*Hans Christian* : Ugly Duckling

*Andersen* : The Little Mermaid, King's Cloths.

*Hugo, Victor* : Les Miserable, Hunchback of Notre Dame.

*Hegel, G. W. F.* : Philosophy of Right

*Hitler, Adolf* : Mein Kampf

*Hope, Anthony* : The Prisoner of Zenda.

*Ibsen* : A Doll's House, Ghosts.

*Iqbal Mohammed* : Bang-i-Dara, Bal-i-Jabril.

*Jai Shanker Prasad* : Kamayani, Ajat Satru, Prem Pathika.

*James, Jeans* : The Universe Around Us. The Mysterious Universe.

*Johnson, Samuel* : The Rambler, The Vanity of Human Wishes.

*Jonson, Ben* : Every Man in his Humour, Silent Woman, Alchemist

*Joyce, James* : Ulysses, Portrait of the Artist as a Young Man.

*Jerome, J. K.* : Three Men in a Boat, Idle Thoughts of an Idle Fellow.

*Keats, John* : Isabela, The Eve of St. Agnes, Endymion.

*Kaul, B.M.Lt. Gen.* : Untold Story

*Kipling, Rudyard* : Kim, Jungle Book, The Light That 'Failed'.

*Kalidas* : Sakuntala, Meghdoot, Raghuvansh, Ritu Samhara, Kumar Sambhava.

*Karl Marx* : Das Capital

*Kalhana* : Rajatarangini

*Kautilya* : Arthashastra

*Kant, Immanuel* : A Critique of Pure Reason.

*Lamb, Charles* : The Essay Elia, Tales from Shakespeare.

*Laski, H.J.* : Grammar of Politics, Liberty in the Modern State, The Dilemma of Our Time.

*Lawrence, D.H.* : Lady Chatterley's Lover, Sons and Lovers, Rainbow

*Lawrence, T.E.* : Seven Pillars of Wisdom.

*Lajpat Rai* : Unhappy India.

*Macaulay, T.B.Lord* : The Lays of Ancient Rome

*Marlowe, Christopher* : Dr. Faustus. Edward Tamerlaine the Great.

*Maugham, Somerset* : Razor's Edge.

*Maithilisharan Gupta* : Saaket, Bharat Bharat Yashodhara, Virangna.

*Mitchel, Margaret* : Gone With the Wind.

*Moliere* : Tartuffe, Misanthrope, The Miser.

*Milton, John* : Paradise Lost, Paradise Regained

*Camus Samson* Agonistes.

*Moore, Sir Thomas* : Utopia.

*Machiavelli* : On the Art of War, The Prince

*Masefield, John* : The Everlasting Mercy, Pomp the Great, Gallipoli.

*Mayo, Katherine* : Mother India.

*Naipal, V.S.* : India : A Wounded Civilisation, Bend in the River

*Narayan, R. K.* : The Guide, Waiting for the Mahatma

*Nietzsche, F.W.* : Thus Spake Zarathustra

*Naidu, Sarojini* : The Song of India, The Sceptre Flute.

*Nehru, Jawaharlal* : The Discovery of India, Glimpses of World History.

*Nirala, Surya Kant* : Juhi Ki Kali, Tulsi Ka Gyaan Bodh.

*Omer Khayyam* : The Rubaiyat

*Orwell, George* : Nineteen Eighty Four, Animal Farm

*Panini* : Ashtadhyayi.

*Pasternak, Boris* : Dr. Zhivago

*Plato* : The Dunciad, Essay on Man.

*Prem Chand. Munshi* : Rang Bhumi, Kaya Kal Godan. Prem Basti, Soz-i-Watan.

## GENERAL KNOWLEDGE

*Pirandello, Luigi* : The Man with the Flower in his Mouth

*Radhakrishnan, Dr. S.* : Hindu View of Life, India Philosophy, East and West in Religion.

*Rolland, Romain* : Mahatma Gandhi, Ramakrishna, Jean Christopher.

*Rousseau* : The Social Contract, Confessions.

*Ruskin, John* : The Last, Lamps of Architecture, Modern Painters.

*Russel, Bertrand, G.W.* : The Principle of Mathematics, History of Western Philosophy, Marriage and Morals

*Rajagopalachari, C.* : The Fatal Cart, Reconciliation - Why and How

*Sarkar, J. N.* : The History of Aurangzeb

*Scott, Sir Walter* : Ivanhoe, Old Mortality, Kenilworth, Marmion.

*Shakspere, William* : Othello, Julius Caesar, Romeo and Juliet.

*Shaw, George Bernard* : Apple Cart, Pygmalion, St. Joan, The Doctor's Dilemma, Arms and the Man, Man and Superman.

*Sheridan, R. B.* : The Rivals, The Critic.

*Shelley, P. B.* : Ode to the West Wind, The Hymn to Intellectual Beauty, Adonis

*Stevenson, Robert Louis* : Dr. Jekyll and Mr. Hyde, The Black Arrow, The Treasure Island.

*Swift, Jonathan* : Gulliver's Travels.

*Spenser, Edmund* : The Faerie Queene.

*Saadi Shaikh* : Gulistan, Bostan.

*Stowe, H. B.* : Uncle Tom's Cabin

*Tagore, R. N.* : Gora, The Wreck, The Gardener, The Post Office, The King of Dark Chamber, Crescent Moon, Home and the World

*Tennyson, A.* : The Lady of Shalott, Idylls of the King.

*Thackeray, W.M.* : Vanity Fair, The Virginians, Henry Esmond.

*Tod, Col.* : Rajasthan.

*Tolstoy, Count Leo* : War and Peace, Resurrection, Anna Karenina.

*Toynbee, Arnold* : One World And India

*Trevelyan, G.M.* : A History of England.

*Tulsidas* : Ram Charitmanas.

*Valmiki* : Ramayana.

*Sartre Jean Paul* : Iron in the Soul, Reprieve, Age of Reason.

*Virgil* : Aeneid.

*Ved Vyas, Rishi* : Mahabharata.

*Wells, H.G.* : The Shape of Things to Come, Time Machine.

*Whitman, Walt* : Leaves of Grass.

*Wordsworth, W.* : Ode to Duty, The Prelude, Solitary Reaper, Tintern Abbey.

*Woodhouse, P.G.* : The Conqueror, The Code, The Woosters.

*Woolf, Virginia* : Jacob's Room, A Haunted House, Mrs. Dalloway

*Wilde, Oscar* : An Ideal Husband.

*Wallace, Lewis* : Ben Hur.

*Zola, Emile* : Nana, Debacle, Germinal.

*Stephen Hawking* : A Brief History of Time

*John Kenneth Galbraith* : A China Passage

*Anthony Burgess* : A Clockwork Orange

*Immanuel Kant* : A Critique of Pure Reason

*Evelyn Waugh* : Handful of Dust

*Jacques Chirac* : A New France

*Gita Mohita* : A River Sutra

*Amit Chaudhary* : A Strange and Sublime Address

*Vikram Seth* : Suitable Boy

*Dominique Lappierre* : A Thousand Suns

*Anita Desai* : A Village by the Sea

*Nayantra Sehgal* : A Voice for Freedom

*Guy de Maupassant* : A Women's Life

*Mark Twain* : Adventures of Tom Sawyer

*Allen Drury* : Advice and Consent

*Ganesh N. Devy* : After Amnesia

*Amit Chaudhary* : Afternoon Raag

*Deepak Chopra* : Ageless Body

*Kazi Nazrul Islam* : Agni Veena

*James Michener* : Alaska Unbound

*Lewis Carroll* : Alice in Wonderland, Erick Mana

*Remarque* : All quiet on the Western Front

*Robert Penn Warren* : All the Kings Men

*Carl Bernstein & Bob Woodward* : All the President's Men

*Mailer, Norman* : Ancient Evenings

- Mikhail Sholokhov : *And Quiet Flows the Don*  
 George Bernard Shaw : *Androcles and the Lion*  
 Tony Kushner : *Angels in America*  
 Aldous Huxley : *Ape and Essence*  
 John O'tara : *Appointment in Samarra*  
 Sinclair Lewis : *Arrowsmith*  
 K. M. Panikkar : *Asia and Western Dominance*  
 Gunnar Myrdal : *Asian Drama*  
 Sinclair Lewis : *Babbitt*  
 Penelope Leach : *Baby and Child*  
 Peter Lynch : *Beating the Street*  
 Toni Morrison : *Beloved*  
 Lewis Wallace : *Ben Hur*  
 Sisirkumar Ghose : *Beyond Modernisation, Beyond Self*  
 Eugene O'Neill : *Beyond the Horizon*  
 Patricia Cornwell : *Black Notice*  
 David Ogilvy : *Blood, brain and beer*  
 Joy Adamson : *Born Free*  
 Feodor Dostoyevsky : *Brothers Karamazov*  
 Bill Gates : *Business @ the Speed of Thought*  
 Kapil Dev : *By God's Decree*  
 Voltaire : *Candide*  
 Joseph Heller : *Catch-22*  
 J.D. Salinger : *Catcher in the Rye*  
 Sumitranandan Pant : *Chidambara*  
 Naguib Mahfouz : *Children of Gebelawi*  
 Gabriel Garcia Marquez : *Chronicle of a Death Foretold*  
 Amitav Ghosh : *Circle of Reason*  
 Andrew Boyle : *Climate of Treason*  
 Kingsley Amis : *Colonel Sun*  
 Thomas Paine : *Common Sense*  
 Alexander Dumas : *Count of Monte Cristo*  
 Gore Vidal : *Creation*  
 Alan Paton : *Cry My Beloved Country*  
 Arthur Ashe &  
 Arnold Rampersad : *Days of Grace*  
 H.P. Nanda : *Days of My years.*  
 Thomas Mann : *Death in Venice*  
 Amrita Pritam : *Death of a City*  
 James Whitaker : *Diana V Charles*  
 Andrew Morton : *Diana : The True Story*  
 Henry Kissinger : *Diplomacy*  
 Michail Crichton : *Disclosure, Jurassic park*  
 Swami Sivananda : *Divine Life*  
 Miguel de Cervantes : *Don Quixote*  
 Bankim Chandra Chatterjee : *Durgesh Nandini*  
 Chandra Shekhar : *Dynamics of Social Change*  
 Al Gore : *Earth in the Balance : Forging a new Common Purpose*  
 Upamanyu Chatterjee : *English August*  
 Escott Reid : *Envoy to Nehru*  
 Dalai Lama : *Ethics for the New Millennium*  
 Ivan Turgenev : *Father and Sons*  
 Bob Woodward and Carl Bernstein : *Final Days*  
 V.K.R.V. Rao : *Food, Nutrition and Poverty in India*  
 Sheikh Mujibur Rahman : *Friends and Foes*  
 Tara Shankar Bandopadhyaya : *Ganadevata*  
 Winston Churchill : *Gathering Storm*  
 Margaret Mitchell : *Gone With The Wind*  
 Pearl S. Buck : *Good Earth*  
 James Hilton : *Goodbye, Mr. Chips*  
 Manjula Padmanabhan : *Harvest*  
 Dr. Karan Singh : *Heir Apparent*  
 Brigadier J.P. Dalvi : *Himalayan Blunder*  
 Kiran Desai : *Hullabaloo in a Guava Orchard*  
 Z.A. Bhutto : *If I am Assassinated*  
 Mc Namara : *In Retrospect : The Tragedy and Lessons of Vietnam*  
 Taya Zinkin : *India Changes*  
 John Keay : *India Discovered*  
 M.V. Kamath : *India of Our Dreams*  
 Kuldip Nayar : *India, The Critical Years*  
 Zia Jaffrey : *Invisibles*  
 Ginu Kamani : *Jungle Girl*  
 Vatsyayana : *Kamasutra*  
 Raja Rao : *Kanthapura*  
 Jeffery Archer : *Kane and Abel*  
 Tavleen Singh : *Kashmir A Tragedy of Errors*  
 Albert Camus : *La Peste*  
 Taslima Zareen Lajja  
 Upamanyu Chatterjee : *Last Burden*  
 Taslima Nasreen Lajja  
 Lee Iacocca : *Lee Iacocca*

## GENERAL KNOWLEDGE

- Victor Hugo : Les Miserables  
 Margaret Mead : letters From the Field  
 Thomas Hobbes : Leviathan  
 Milan Kundera : Life is Elsewhere  
 Vladimir Nabakov : Lolita  
 Eugene O'Neill : Long Day's Journey into Night  
 Nelson Mandela : Long Walk to Freedom  
 Khushwant Singh : Love, Truth and A Little Mat-ice  
 Ved Mehta : Mahatma Gandhi and his Apostles  
 Sinclair Lewis : Main Street  
 Luigi Pirandello : Man, Beast and Virtue  
 Jim Corbett : Man-eaters of Kumaon  
 Peter Drucker : Managing for the Future  
 Arnold Toynbee : Mankind and Mother Earth  
 John Cray Eliot : Men are from Mars, Women are from Venus  
 Salman Rushdie : Midnight's Children  
 Michael Jackson : Moonwalk  
 V.V. Giri : My Life and Times  
 Pt. Ravi Shankar : My Music, My Life  
 R. Venkatraman : My Presidential Years  
 E.K. Nayanar : My Struggles  
 Indira Gandhi : My Truth  
 B.K. Nehru : Nice Guys Finish Second  
 Larry Collins & Dominique Lapierre : O'Jerusalem  
 Pope John Paul II : On the Threshold of Hope  
 Wendell Wilkie : One World  
 Rodney Doyle : Paddy Clark, Ha Ha Ha  
 Vishnu Sharma : Panchatantra  
 Bibhuti Bhushan : Pather Panchali  
 Ved Mehta : Portrait of India  
 Jayaprakash Narayan : Prison Diary  
 Vikram Chandra : Red-Earth and Pounding Rain  
 Edgar Snow : Red Star Over China  
 Gloria Steinem : Revolution from Within  
 Edward Fitzgerald : Rubaiyat-i Omar Khayyam  
 Nathaniel Hawthorne : Scarlet Letter  
 Bhabani Bhattacharya : Shadow from Ladakh  
 Gita Mehta : Snakes and Ladders : Essays on India  
 Octavio Paz : Sun Stone  
 Sunil Gavaskar : Sunny Days  
 Swami and Friends : R.K. Narayan  
 Bob Woodward : The Agenda  
 Henry Morton Robinson : The Cardinal  
 M.M. Kaye : The Far Pavillions  
 James Baldwin : The Fire Next Time  
 Gunter Grass : The Flounder  
 Tara Ali Baig : The Forbidden Sea  
 Vikram Seth : The Golden Gate  
 Pablo Neruda : The Grapes and the Wind  
 Sashi Tharoor : The Great Indian Novel  
 Carson McCullers : The Heart is a Lonely Hunter  
 Iris Murdoch : The Green Knight  
 Saul Bellow : The Humboldt Gift  
 Feodor Dostoyevsky : The Idiot  
 Wole Soyinka : The Interpreters  
 Milan Kundera : The Joke  
 Steve Martin : The Judge  
 David Selbourne : The Making of a Midsummer Night's Dream  
 Margaret Drabble : The Middle Ground  
 Salman Rushdie : The Moor's Last Sigh  
 Carre, John le : The Night Manager  
 Graham Greene : The Power and the Glory  
 Norman Vincent Peale : : The Power of Positive Thinking  
 Irving Wallace : The R Document  
 Bill Gates : The Road Ahead  
 Deepak Chopra : The Seven Spiritual Laws of Success  
 Nelson Mandela : The Struggle in My Life  
 Adam Smith : The Wealth of Nations  
 John Byrne : The Whiz Kids  
 Colleen McCullough : Thorn Birds  
 Yasunari Kawabata : Thousand Cranes  
 Leon Uris : Trinity  
 S. Gopalan : Tryst with Destiny  
 General B.M. Kaul : Untold Story  
 William Kennedy : Very Old Bones  
 Samuel Becket : Waiting For Godot  
 N.A. Palkhiwala : We the Nation, The Lost Cades  
 A.P.J. Abdul Kalam : Wings of Fire  
 V.S. Khandekar : Yayati  
 Zlata Filipovic : Zlata's Diary-A Child's Life in Sarajevo  
 Pilo Mody : Zulfi, My friend ■■

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## GENERAL KNOWLEDGE

### Chiefs of Armed Forces

**Suprema Commander** : President Mr.K.R. Narayanan  
**Chief of the Army Staff** : General V.P. Malik  
**Chief of the Air Staff** : Air Chief Marshal A.Y. Tipnis  
**Chief of the Naval Staff** : Admiral Sushil Kumar

### Heads of Important Offices (India)

**Atal B. Vajpayee** : Chairman, Planning Commission  
**K.C. Pant** : Deputy Chairman, Planning Commission  
**Kristina Kuntz** : Chairman, Rajya Sabha  
**Mrs. Najma Heptulla** : Deputy Chairperson, Rajya Sabha  
**G.M. Bahyagi** : Speaker, Lok Sabha  
**P.M. Snyed** : Deputy Speaker, Lok Sabha  
**Justice A.S. Anand** : Chief Justice of India

**Dr. M.S. Gill** : Chief Election Commissioner  
**Dr. A.P.J. Abdul Kalam** : Principal Scientific Adviser to the Government  
**Brajesh Mishra** : Principal Secretary to the PM  
**Prabhat Kumar** : Cabinet Secretary  
**S.S. Sahani** : Secretary-General, Rajya Sabha  
**G.C. Malhotra** : Secretary-General, Lok Sabha  
**Harish Salva** : Solicitor General of India  
**Soli J. Sarabjee** : Attorney General of India  
**Lalit Manshig** : Foreign Secretary  
**Kamal Pande** : Home Secretary  
**P. Mankad** : Finance Secretary  
**A.S. Dulat** : Director, Research and Analysis Wing  
**Shyamal Datta** : Director, IB  
**R.K. Raghavann** : Director, CBI

### Capitals, Governors and Chief Ministers of States

State	Governor	Chief Minister
Andhra Pradesh	C. Rangarajan	N. Chandrababu Naidu
Arunachal Pradesh	Arvind Dave	Mukul Mithi
Assam	Lt.Gen.(Rtd.) S.K. Sinha	Profulla Kumar Mahanta
Bihar	Vinod Chandra Pando	Mrs. Rohini Devi
Goa	Mohammad Fozal	Francisco Sordinha
Gujarat	S.S. Bhandari	Keshubhai Patel
Haryana	Mahabir Prasad	Om Parkash Chautala
Himachal Pradesh	Vishnu Kant Shastri	Prem Kumar Dhunial
Jammu and Kashmir	Girish Chandra Saxena	Dr. Farooq Abdullah
Karnataka	V.S. Rama Devi	S.M. Krishna
Kerala	Justice Sukhdev Singh Kang	E.K. Nayanar
Madhya Pradesh	Bhar Mahavir	Digvijay Singh
Maharashtra	Dr. P.C. Alexander	Vilasrao Deshmukh
Manipur	Ved P. Marwah	Wahengbam Manmohan Singh
Meghalaya	M.M. Jacob	E.K. Mawlong
Mizoram	Mr. Anandan Padmanabhan	Zoramthanga
Nagaland	Om Prakash Sharma	S.C. Jamir
Orissa	M.M. Rajendran	Naveen Pattnaik
Punjab	Lt.Gen.(Rtd.) J.F.R. Jacob	Parkash Singh Badal
Rajasthan	Justice Anshuman Singh	Ashok Gehlot
Sikkim	Chaudhury Randhir Singh	Pawan Kumar Chamling
Tamil Nadu	Ms. Justice M. Fathima Beevi	M. Karunanidhi
Tripura	Prof. Siddeshwar Prasad	Manik Sarkar
Uttar Pradesh	Suraj Bhan	Ram Prakash Gupta
West Bengal	Viren J. Shan	Jyoti Basu

### Capitals, Lt. Governors/Administrators and Chief Ministers of Union Territories

Union Territory	Capital	Lt Governor/Administrator	Chief Minister
Andaman & Nicobar	Port Blair	Ishwari Prasad Gupta	--
Chandigarh	Chandigarh	Lt.Gen.(Rtd.) J.F.R. Jacob	--
Dadra & Nagar Haveli	Silvassa	S.P. Aggarwal	--
Daman and Diu	Daman	Mohammad Fazal	--
Delhi	Delhi	Vijay Kumar Kapoor	Ms. Sheila Dikshit
Lakshadweep	Kavaratti	Rajeev Talwar	--
Pondicherry	Pondicherry	Ms. Rajani Rai	R.V. Janakiraman

**Prof. Krishnaswamy Kasturirangan** : Chairman, Space Commission and ISRO

**Dr. R. Chidambaram** : Chairman, Atomic Energy Commission  
**Anil Kakodkar** : Director, BARC  
**S. P. Sukhralma** : Chairman, Atomic Energy Regulatory Board  
**E.N. Ram Mahan** : D.G., BSF  
**Trinath Mishra** : Director-General, Central Industrial Security Force  
**Lt. Gen. (Rtd.) Surinder Nath** : Chairman, UPSC  
**K.M. Lal** : Chairman, SSC  
**Dilip Singh Boria** : Chairman, National Commission for SCs & STs  
**Justice Mohammad Hanif** : Chairman, National Comm. for Minorities  
**Mahd. Hidayatullah Khan** : Chairman, National Minorities Development and Finance Corporation  
**Justice Shyam Sunder** : Chairman, National Comm. for Backward Classes  
**Anil Kumar** : Chairman, Telecom Commission  
**M.S. Verma** : Chairperson, Telecom Regulatory Authority of India  
**B.P. Jeevan Reddy** : Chairman, Law Commission  
**Dr. Amrita Patel** : Chairperson, National Diary Development Board  
**Lt. Gen. A.K. Pan** : Director-General, Border Roads Organisation  
**M.N. Sabharwal** : D.G. CRPF  
**Rajiv Rattan Shah** : Chief Executive Officer (Acting), Prasar Bharati  
**President, Indian Broadcasting Foundation (IBF)**  
**Nirmal Kumar Ganguly** : Director-

eral, Indian Council of Medical Research  
 ice A.N. Divecha : Chairman, MRP Commission  
 . Wadhawan : Chairman, Public Enterprises Selec-  
 Board  
 i Vijayanunjni: Registrar-General of India and Cen-  
 Commissioner  
 al Jalan : Governor, RBI  
 Hari Pratap Gautam : Chairman, UGC  
 ndra Verma : Chairman, National Comm. on Labour  
 endra Singh : Chairman & MD, NTPC  
 P.B. Sawant : Chairman, Press Council of India  
 Bhattacharjee : Director, Press Institute of India  
 Ravi : Chairman, Press Trust of India  
 Shobha Subramanyam : Chairperson, United News  
 India: President, Indian Newspaper Society  
 . Agarwal : Chairman, Railway Board  
 Krishnamurti : Chairman, LIC  
 Sengupta : Chairman, GIC  
 Rangachary : Chairman, IRA  
 I Bajaj : Chairman, Indian Airlines  
 i Kant : Chairman, Central Board of Direct Taxes  
 . Solanki : Chairman, Central Board of Excise and  
 Customs  
 . Bora : Chairman and MD, ONGC Limited  
 ind Pande : Chairman, SAI  
 A. Pathan : Chairman, Indian Oil Corporation  
 . Shunglu : Comptroller & Auditor General of India  
 S. Vaidya : Chairman, State Bank of India  
 . Subramanayam : Chairman, Unit Trust of India  
 P. Gupta : Chairman, IDBI  
 R.A. Mashelkar : Director-General, CSIR  
 R.S. Paroda : Director-General, ICAR  
 Vittal : Chief Vigilance Commissioner  
 ices Jagdish Sharan Verma : Chairman, National  
 Human Rights Commission  
 mesh Chandra : Chairman, Central Water Comm.  
 . Vibha Parthasarthy : Chairperson, National Com-  
 mission for Women  
 . Mridula Sinha : Chairperson, Central Social Wel-  
 fare Board  
 resh Kalmadi : President, IOA  
 S.R. Nadig : Chairman, National Book Trust  
 Abdul Waheed Khan : Vice-Chancellor, IGNOU  
 ul Bajaj : Chairman, CII  
 Jagdish Khattar : MD, Maruti Udyog Ltd

## President and Prime Ministers of Some Countries

eria : President - Abdelaziz Bonteflika, PM - Ahmad  
 inbitour  
 gentina : President-Fernanda De La Rúa  
 stralia : Governor General-William Deane PM -  
 ward

Austria : President-Thomas Klestil; Chancellor- Wolfgang  
 Schuessel  
 Belarus : President-Aleksandr Lukashenko; Prime  
 Minister-Sergei Ling  
 Belgium : King-Albert II; PM - Guy Verhofstadt  
 Bhutan : King-Jigme Singye Wangchuk  
 Brazil : President-Fernando Cardoso  
 Bulgaria : President-Petar Stoyanov; PM - Zhan Videnov  
 Cambodia : King-Prince Norodom Sihanouk; First PM -  
 Ung Huot; Second PM - Hun Sen  
 Canada : Governor General-Ramon Hnatyshyn; PM-  
 Jean Chretien  
 China : President-Jiang Zemin; PM Zhu Rongji  
 Colombia : President-Ernesto Samper Pizano  
 Congo (Zaire) : President-Laurent Desire Kabila  
 Cuba : President-Fidel Castro  
 Czech : President-Vaclav Havel; PM Josef Tosovsky  
 Denmark : Queen Margreth II, PM- Poul, Nyrup  
 Rasmussen  
 Egypt : President-Hosni Mubarak; PM Kamal El-  
 Ganzoury  
 Ethiopia : President- Dr. Vigashu Gerar; PM - Meles  
 Zenawi  
 Fiji : President-Ratu Sir Kamisese Mara; PM - Mahendra  
 Chaudhry  
 Finland : President-Ms. Tarja Halonen; PM Kalevi Sorsa  
 France : President-Jacques Chirac; PM Lionel Jospin  
 Germany : President-Johannes Rau; Chancellor Gerhard  
 Schroeder  
 Greece : President-Constantinos Stephanopoulos; PM-  
 Costas Simitis  
 Hungary : President-Arpád Göncz; PM - Gyula Horn  
 Indonesia : President-Abdurrahman Wahid  
 Iran : President-Mohammed Khatami; PM - Mir Hussein  
 Moussavi  
 Iraq : President-Saddam Hussein  
 Israel : President-Ezer Weizman; PM Ehud Barak  
 Italy : President-Carlo Azeglio Ciampi; PM -Massimo D'Alema  
 Japan : Emperor-Akihito; PM - Keizo Obuchi  
 Jordan : King-Abdullah; PM - Abdul Raouf Rawabdeh  
 Kazakhstan : President-Nursultan Nazar-bayev; PM-  
 Nurlan Balgimbayev  
 Korea, North : President-Marshal Kim Jong Il; PM -  
 Hong Song Nam  
 Korea, South : President-Kim Dae Jung; PM - Koh Kun  
 Kuwait : Emir-Shaikh Jaber Al Ahmed Al Sabah; PM-  
 Shaikh Saad Al Abullah Al Sabah  
 Kyrgyzstan : President-Askar Akayev; PM - Apas  
 Djumagutor  
 Laos : President-Gen Khamlity Siphandone; PM - Gen.  
 Sisavath Keobounphanh  
 . Col. Muammar El-addafi PM - Mubarak



*Madagascar* : President-Didier Ratsirako; Prime Minister - Pascal Rokotomavo  
*Malaysia* : King-Sultan Salahuddin Abdul Aziz Shah  
 Prime Minister-Dr Mahatir bin Mohamad  
*Maldives* : President-Maumoon Abdul Gayoom  
*Mauritius* : President-Cassam Uleem; Prime Minister-Navinchandra Ramgoolam  
*Marocco* : King-Sidi Mohammed; Prime Minister-Abderrahmane Yousoufi  
*Myanmar (Burma)* : President-Maung Maung; Prime Minister-Gen Than Shwe  
*Namibia* : President-Sam Nujoma; PM - Hage Geingob  
*Nepal* : King-Birendra Bir Bikram Shah Dev; Prime Minister-Ginjo Prasad Koirala  
*New Zealand* : Governor General-Sir Paul Reeves; Prime Minister-Ms Helen Clark  
*Niger* : President-Daouda Malam Wanke; Prime Minister-Ahmadou Boubacar Cisse  
*Nigeria* : President-Gen. Olusegun Obasanjo  
*Norway* : King-Harold; PM - Mr. Kheil Magne Bondevik  
*Pakistan* : Chief Executive-Gen. Pervez Musharraf; President-Muhammad Rafiq Tarar  
*Peru* : President-Alberto Fujimori; Prime Minister-Victor Joy Way  
*Philippines* : President-Joseph Estrada  
*Poland* : President-Aleksander Kwasniewski; Prime Minister-Jerzy Buzek  
*Portugal* : President-Jorge Sampaio; Prime Minister-Antonio Guterres  
*Romania* : President-Emil Constantinescu; Prime Minister-Mugur Isarescu  
*Russia* : President-Vladimir Putin; PM - Vladimir Putin  
*Rwanda* : President-Pasteur Bizimungu  
*Saudi Arabia* : King-King Fahd bin Abdul Aziz  
*Serbia* : President-Slobodan Milosevic; Prime Minister-Mirko Marjanovic  
*Sierra Leone* : President-Major Johnny Koroma  
*Singapore* : President-S.R. Nathan; Prime Minister-Goh Tong  
*Slovakia* : President-Michal Kovac; Prime Minister-Jozef Mecer  
*South Africa* : President-Thabo Mbeki  
*Spain* : King-Juan Carlos I; Prime Minister-Jose Maria Aznar  
*Sri Lanka* : President-Ms Chandrika Kumaratunga; Prime Minister-Ms Sirimavo Bandaranaike  
*Sudan* : President-Omar Hassan al-Bashir  
*Sweden* : King-Carl XVI Gustav; Prime Minister-Goran Persson  
*Syria* : President-Hafez-al-Assad; Prime Minister-Mahmoud Al-Zouabi  
*Taiwan* : President-Lee Teng-Hui; PM Vincent Siew  
*Tajikistan* : President-Imamoli Rakhmanov; Prime Minister-Akil Akilov

*Tanzania* : President-Benjamin William Mkapa; Prime Minister-Frederick Sumaye  
*Thailand* : King-Bhumibol Adulyadej; Prime Minister-Chuan Leekpai  
*Trinidad and Tobago* : President-A.N.R. Robinson; Prime Minister-Vasudeo Pandey  
*Turkey* : President-Suleyman Demirel; Prime Minister-Bulent Ecevit  
*United Arab Emirates* : President-Sheikh Zayed Sultan Al Nahayan; Prime Minister-Sheikh Maktoum Rashid  
*United Kingdom* : Queen-Elizabeth II; Prime Minister-Tony Blair  
*United States of America* : President-Bill Clinton  
*Vietnam* : President-Tran Duc Luong; Prime Minister-Phan Van Khai  
*Zambia* : President-Frederick Chiluba; Prime Minister-General M.N. Masheke  
*Zimbabwe* : Executive President-Robert Mugabe

### Heads of Important Offices (World)

*Kofi Annan* : Secretary-General, UNO  
*Louise Frechette* : First Deputy Secretary General, James Wolfensohn : President, World Bank (IBRD)  
*Anil Sood* : Vice-President, World Bank  
*Stanley Fischer* : Managing Director (acting), IMF  
*Koichiro Matsuura* : Director-General, UNESCO  
*Jacques Diouf* : Director-General, FAO  
*Juan Somavia* : Director-General, ILO  
*Ms. Carol Bellamy* : Executive Director, UNICEF  
*Ms. Gro Harlem Brundtland* : Director General, WHO  
*Mark M. Brown* : Director-General, UNDP  
*Donald Johnston* : Secretary-General, Organisation for Economic Cooperation and Development (OECD)  
*Gilbert Guillaume* : President, International Court of Justice  
*Tadao Chino* : President, Asian Development Bank (ADB)  
*C.S. Krishnamurthy* : Vice-President, ADB  
*Omar Kabhaj* : President, African Development Bank  
*Thabo Mbeki* : Chairman, Non-Aligned Movement  
*Emeka Anyaoku* : Secretary-General, Commonwealth  
*Juan Antonio Samaranch* : President, International Olympic Committee  
*Blaise Compaore* : Chairperson Organisation of African Unity (OAU)  
*Yasser Arafat* : Chairman, Palestine Liberation Organisation (PLO)  
*George Robertson* : Secretary-General NATO  
*Mike Moore* : Director-General, WTO  
*Ajit Singh* : Secretary-General, ASEAN  
*Mark Wood* : Editor-in-Chief, Reuters  
*Lamine Diack* : President, International Amateur Athletic Federation (IAAF) ■■

